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ABSTRACT

Research was conducted to determine how well the Management Audit Survey (MAS), an evaluation system used in the U.S. Employment Service (ES), could predict various ES performance criteria. (The purpose of the system is to give all levels of management an analysis and review of management procedures and of certain organizational climate characteristics to stimulate higher levels of performance through better use of human resources.) Effects of management practices on productivity of ES offices were examined through employee responses to the 100-item MAS questionnaire. The primary statistical analyses were done on 265 offices from six States. Fifteen criterion measures and fifteen control scores were examined to assess productivity of the ES system. Six criterion measures were identified as being most relevant for analyzing ES performance. Two control scores--workload (applicants available/ES positions) and UI claimants as a percentage of applicants available--explained the most variance on selected criteria. Workload had a positive impact on placement per position and a negative impact on percent of applicants placed. Unreliability of criterion measures and effects of control variables made prediction of ES performance criteria with the MAS scores difficult. The MAS scores with the most significant validities in predicting ES performance criteria were operational efficiency, performance, feedback, work satisfaction, morale, and satisfaction with pay. Study results indicated that further research is needed, but that management practices assessed by the MAS play a significant role in the productivity of the Employment Service. Included in the report are background research reviews on organizational climate and effectiveness and a description of previous research of the MAS. (Author/WL)

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VALIDATION OF THE MANAGEMENT AUDIT SURVEY AGAINST EMPLOYMENT SERVICE CRITERIA

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CHAPTER I

INTRODUCTION

The United States Employment Service first began in 1933, with the passage of the Wagner-Peyser Act. The primary role of the Emplcyment Service was job placement--matching individuals to available positions thereby serving both the unemployed and employers. Over the years, other legislation has mandated other responsibilities and duties for the Employment Service. The Employment Service was responsible for much of the training of the occupationally unfit for a period of time, and was responsible for delivering manpower services to the disadvantaged (the poor, minority group members, handicapped, the young, the old, etc.) for another period. In addition to a number of other functions, the emphasis has again shifted back to placement--with increasing emphasis on quality.

Since the Employment Service is politically-based and depends upon the perceived needs of society for its goals and objectives, the functions of that agency will continue to change from time to time, with different emphases according to the current social conscience and the current political exigencies. The difficulty with any legislated public agency was pointed out by Johnson (1973):

> Between the conceptualization of a public service and its final implementation lies a tortuous and often devious path. It begins with what the courts call the "intent" of the enabling legislation, winds through the verbiage of the mandate issued by agency policy makers, drifts down through the hierarchy of various administrative levels, and finally reaches the front lines--that point at which service is delivered to the public. The process is the same, whether the initial intent is to provide education, to administer welfare, to ensure civil rights, or to deal with public offenders: A government bureaucracy with responsibility for the particular function must devise a delivery system, presumably to provide a means for the program to find and serve its intended target group.
>
> The consequences of this process are manifold. Often policies enunciated by high level agency spokesmen are altered, diluted, rigidified, or reinterpreted as they move toward the point of implementation. Thus the service finally delivered at the lowest point of the structure may bear little resemblance to the ideals stated in public pronouncements of policy makers and administrators....
>
> Manpower programs are little different from other social programs in this regard. No matter what the original intent, no matter how tortuous the path from conception to implementation, it is in the local offices of the public employment service throughout the country that most manpower services finally cross over to the recipient. It is at that point where interviewer meets job seeker and programs become reality. (pp. 7-8)

Many problems are introduced when the perceived function of a public service agency changes. The employees must be prepared to operate differently along different guidelines, and the public must become aware of new eligibility requirements and new services offered, as an agency goes from working toward solving social problems to placing people in employment. The criteria that are used to determine the effectiveness of the agency and its employees also change. Developing an effective program of organizational effectiveness then, depends on being able to build in enough flexibility to meet these changes.

Regardless of the criteria used to determine the effectiveness of a public service agency, regardless of the particular goals and objectives of the agency at any given point in time, perhaps the one common element that remains is the employee who has to implement the wishes of the supervisors, the legislators, the society. Making effective use of the human resources is a crucial consideration for the survival of an organization and the achievement of organizational objectives.

This report is concerned with the development of the Management Audit Survey (MAS), a system that gives all levels of management an analysis and review of management procedures and certain organizational climate characteristics to stimulate higher levels of performance through better use of human resources. The MAS system is based on the assumption that more effective levels of human resource management will result in higher levels of organizational productivity, regardless of the criteria that are being used at any given time to determine the effectiveness of the organization.

The purpose of the research reported was to determine how well the MAS could predict various Employment Service performance criteria. If the MAS could predict these criteria efficiently and effectively, then opportunities for improvement identified by the MAS with consequent action plans and other follow-up procedures to improve human resource management would be likely to improve performance by that organization.

Overview of the Management Audit Survey (MAS)

The MAS system begins with a 100-item questionnaire which is administered to all employees of an organization to measure 19 score areas of human resource management. These data are computer-processed, with random responses and other sources of error eliminated, so that each supervisor of a work group, having five or more employees who completed the MAS survey, receives a computer feedback report together with a handbook to help interpret the scores and to provide suggestions for improving performance.

The system was developed to complement existing auditing procedures in the Department of Labor by providing an economical review of management procedures throughout a large organization by using descriptions provided by employees who are in an excellent position to observe management practices. The purpose of such a system was:

- To aid supervisors and managers in making better use of the Department's resources to promote greater worker satisfaction;

- To guide all levels of management in identifying and overcoming problem areas;
- To stimulate improvement in the management areas most in need of attention; and
- To enable the Department of Labor to do its work more effectively.

The MAS was not designed to replace existing auditing procedures or functions, but to provide complementary information that could be combined with that obtained through regular auditing procedures to provide information and feedback to supervisors, so that the individual work groups could operate more efficiently. If the individual work groups could function better, then the total system could fulfill its mission more thoroughly and more effectively. Table 1 shows how the MAS complements the operations auditing. The information that is obtained provides an extensive picture of the functioning of the organization and the organizational climate, as the table indicates. The MAS does not choose the best solution for problems in management or directly evaluate personnel. The MAS does not take into account those situational variables that influence the way a supervisor can function and, thus, all other information should be taken into account in interpreting the results.

The MAS can be viewed from a number of different perspectives, each of which contributed implicitly or explicitly to the development and application of the system:

1) The rapidly developing fields of operations auditing (Lindberg and Cohn, 1972) and internal auditing (Institute of Internal Auditors, 1969) have some goals similar to those of the MAS, since they are also concerned with the effectiveness of management. These procedures and the MAS assess somewhat similar kinds of information, but through different kinds of procedures. Operations auditing and internal auditing rely heavily on interviews and statements of operating procedures, objectives, and results obtained, which are often unique to each organizational component. In contrast, the MAS uses a standard questionnaire to obtain from all employees a description of existing conditions throughout the entire organization with separate feedback reports for each work group or organizational component. The MAS and traditional management auditing procedures can complement each other, since the MAS can be applied to a wide range of organizational components on a cost-efficient basis, with the results used to identify areas in need of follow-up attention with other auditing procedures. Each approach also provides complementary information that can contribute to higher levels of organizational performance.

2) The general rationale of systems theory as illustrated by Katz and Kahn (1966) and Baker (1973) also contributed to the development of the MAS. In systems theory, the continued survival of an organization can only be maintained through a thorough understanding of its functions--economic and behavioral--as they relate to its subsystems of management, production, adaptation, support, and maintenance. Since "social structures are essentially contrived systems...anchored in the attitudes, perceptions, beliefs, motivations, habits, and expectations of human beings (Katz and Kahn, 1966,

Table 1

Complementary Characteristics of the Management Audit Survey System and Operations Auditing

Characteristics	MAS	Operations Auditing*
1. Common Standards	Yes	No
2. Organization Wide	Yes	No
3. Feedback Specific to Each Unit	Yes	Generally Not
4. Comparative Feedback Across Time	Yes	?
5. Organizational Development	Yes	Indirectly
6. Quantified Indications of Unit Performance	Yes	Judgmental
7. Emphasizes Procedures, and Organizational Characteristics	Yes	Yes
8. Provides Suggestions for Unit Improvement	Yes	?
9. Chooses Best Solution	No	No
10. Directly Evaluates Personnel	No	No
11. Employee Input	Yes	Yes
12. Considers Other Sources of Information	No	Yes
13. Indicates Opportunities for Improvement	Yes	Yes
14. Indicates Problems for Further Study	Yes	Yes

*Taken from: Lindberg, R. A., and Cohn, T. Operations auditing. New York: American Management Association, 1972.

p. 33)," descriptions of various functions by people in the organization should be examined to further the development of the organization. Obviously, since employees are responsible for the completion of the work processes and output of an organization and are, thereby, in a unique position to describe the organizational procedures that impact on human resource management and organizational productivity, the use of employees as an information source is a major asset of the MAS. Ultimately such information from the MAS needs to be integrated with other information on process and output measures to provide an integrated systems approach to monitor and stimulate higher levels of performance on the complementary goals of society, the organization, and the employees.

3) The third and most direct antecedent to the development of the MAS was the traditional area of research through attitude surveys, which has been replaced by a broader focus on organizational psychology. In contrast with traditional attitude surveys--which examine individual needs and reactions to the organization--and some organizational climate literature--which contains many assessments of tangential or underlying construct features such as support or warmth, or motivational conditions, etc.--the MAS tries to attack functions and procedures in human resource management directly on a more behavioral level, thus contributing to more effective diagnosis as well as providing suggestions for improved levels of performance.

4) The development of the MAS can also be viewed from an organizational development standpoint. Numerous programs, many at substantial expense per participant, have been developed to provide training and experiences which would result in improved levels of individual and, thus, organizational performance. Typically, organizational development programs have used tangential or underlying approaches which are believed to be crucial for effective organizational functioning. The MAS system, which provides feedback on each organizational work group, together with the Supervisory Handbook, which accompanies the computer feedback, and provides behavioral guidelines, are aimed directly at work procedures and opportunities for improvement and require no adaptation or transfer from the developmental sequence or situation to the job situation. In view of the diagnostic sensitivity of the MAS and the high situational relevance, integrating MAS and organizational development strategies can be an exciting and mutually reinforcing endeavor to bring about higher levels of development and organizational performance.

Research Objectives

Although a great deal of technical sophistication has gone into the development of the MAS, the empirical evaluation of the system against organizational performance criteria has been limited primarily to the State of Pennsylvania. Thus, the general goal of the research reported here was concerned with extending and generalizing the results obtained. These results indicated that local offices differ in how they use their human resources, as measured by the MAS, and these differences were related to a variety of Employment Service performance and process measures. These results need to be extended to other geographical areas with a broader inclusion of situational or control factors so that the advantages and limitations of the system can be defined to permit effective use of MAS results to identify and capitalize upon oppor-

tunities for improvement. While the general goal is concerned with further validation of the MAS, a number of interrelated objectives are involved:

1) To define, quantify, and describe selected performance measures to ascertain meaningful patterns of relationships and deficiencies among the various criteria.

2) To examine the relationships among various situational factors and the criterion measures. This step is necessary to develop performance indicators, or indices, with which local offices may be compared. Obviously, a local office in a highly favorable situation may look relatively outstanding on outcome measures, yet be relatively inefficient on management procedures. Thus, the impact of various control variables needs to be assessed to make the local offices comparable on the basis of output. This would facilitate an analysis of the effectiveness of management procedures by the MAS variables.

3) To determine the validity of MAS measures in predicting a variety of performance criteria and to examine the relationships of MAS scores to available control scores.

Further demonstrations and generalizations concerning the validity of the MAS would lead to more effective use of the instrument and management of human resources. In addition, previous results have indicated that certain management procedures can be emphasized to help overcome the effects on such measures as office size and workload.

The report will proceed by examining the research findings on organizational climate and organizational effectiveness which will be presented in Chapter II. A complete exposition of the development and previous research of the MAS will be found in Chapter III. Chapter IV summarizes the procedures followed in this study, Chapter V presents the results of the data analysis, and Chapter VI presents the conclusions, recommendations for future research, and the summary of the project.

CHAPTER II

REVIEW OF THE LITERATURE

Organizational climate, psychological environment, human resource management, and organizational development are all phrases which are popular in the organizational and management literature. The purpose of this section of the report is to summarize briefly the state of the art in these areas as they are related to the Management Audit Survey, focusing most directly upon organizational climate, and to discuss the interface of the MAS with human resource management and the process of planned organizational change. Also included in this review is a summary of some of the research that has been done on the Employment Service and previous IBRIC research on organizational climate.

Organizational Climate

Four major literature reviews of organizational climate exist to date (Forehand and Gilmer, 1964; Campbell, Dunnette, Lawler, and Weick, 1970; James and Jones, 1974; and Hellriegel and Slocum, 1974). Forehand and Gilmer, and Campbell, et al., defined organizational climate somewhat differently and consequently focused on slightly divergent organizational characteristics. James and Jones reviewed the two reviews, as well as studies by Schneider (1973) and Guion (1973), and developed a synthesis of organizational climate research. Hellriegel and Slocum took a systems perspective and analyzed several climate studies relative to it. While the focus of this review will be largely on the conceptualization of climate of James and Jones, other implications and research will also be reviewed.

James and Jones categorized the work of Forehand and Gilmer as representative of the "multiple measurement-organizational attribute" approach, which defined organizational climate as:

> . . . . a set of characteristics that describe an organization and that (a) distinguish the organization from other organizations, (b) are relatively enduring over time, and (c) influence the behavior of people in the organization. (Forehand and Gilmer, 1964, p. 362)

Forehand and Gilmer suggested that before organizational climate can be used as a construct, it must exhibit:

1) identification of organizational units (department, divisions, etc.) to serve as the subjects in the model, thus establishing the comparability of units across organizations;

2) homogeneity within organizational units, such that the objective determinants of organizational climate are applicable to all subunits;

3) existence, importance, and stability of organizational properties; and

4) meaningful combinations or configurations of organizational properties, such that the climate of a particular organization can be best described.

Further, they stated that the research existing at that time (1964) lacked measurement rigor, since there were few operational (behaviorally-based) definitions of climate dimensions, almost no investigations of validity, and the research designs were insufficient to account for individual/organizational interactions.

Campbell, et al. (1970) defined organizational climate as:

> . . . a set of attributes specific to a particular organization that may be induced from the way the organization deals with its members and its environment. For the individual member within an organization, climate takes the form of a set of attitudes and expectancies which describe the organization in terms of both static characteristics (such as degree of autonomy) and behavior-outcome and outcome-outcome contingencies. (p. 390)

Campbell, et al., through a synthesis of past studies, named four constructs which were more or less common to the studies they reviewed. These were: 1) individual autonomy; 2) the degree of structure imposed upon the position; 3) reward orientation; and 4) consideration, warmth, and support. While Campbell, et al. felt that this list was incomplete, the dimensional complexity of organizational climate as known today is far beyond their original conceptualization. However, their concerns for the "perceptual measurements-organizational attribute" (James and Jones, 1974) approach to conceptualizing organizational climate are still critical. Essentially, these are:

1) Generalization from the perceived situation to the actual situation--this involves construct validity considerations (i.e., to what extent does the score area really measure the actual situation), as well as reliability considerations, such as what level of consensus exists among employees with respect to the management procedure in question;

2) Objectively vs. perceptually defined factors or scores--including such considerations as breadth of measurement, appropriate scoring procedures, test construction methodology, and item selection procedures;

3) Level of analysis--involving what statistical procedures should be used to reflect accurately the data at given levels within the organization, e.g., individual level data should be used to answer some questions, and group data, or averaged individual level data, should be used to answer others. Further, this concern involves problems in the accurate and appropriate reporting of results and/or relationships across organizational foci; and

4) The criterion problem--how can the validity of the scores, perceptions, etc., be evaluated, what should they be evaluated against, and how accurate and appropriate are the criteria used to evaluate the measures.

Schneider (1973) reconceptualized organizational climate into a "perceptual

measurement-individual attribute" approach. Schneider defined climate as follows:

> The concept of climate in the present research must be described as personalistic; climate is an individual perception. There was no attempt to restrict the climate definition to perceptions shared by members of a work-group or organization. As stated elsewhere . . . "what is psychologically important to the individual must be how he perceives his work environment, not how others might choose to describe it". (p. 254)

Schneider further stated that the data collected should be appropriate for the level of explanation and that shared perceptions of climate may be important for predicting the behavior of many individuals.

Schneider's major concerns were the match between conceptualization of climate and what measurememt methodology the concept implies, and the relationship among employers, employees, and customers. The first concern implies level of analysis, and the second implies system differences, i.e., the organization's system orientation (open vs. closed) and its effect on the people who enter its environment.

Guion (1973) considered the family of constructs implied by organizational climate to "be one of the most important to enter the thinking of industrial-organizational psychologists in many years" (p. 120). Concerned about organizational climate research, he further stated that:

> The idea of "organizational climate" appears to refer to an attribute, or set of attributes, of the work environment. The idea of a "perceived organizational climate" seems ambiguous; one can not be sure whether it implies an attribute of the organization or of the perceiving individual. If it refers to the organization, then measures of perceived organizational climate should be evaluated in terms of the accuracy of the perceptions. If it refers to the individual, then perceived organizational climate may simply be a different name for job satisfaction or employee attitudes. (p. 120)

Hellriegel and Slocum (1974) added no new criticisms, but they emphasized the systems approach and the confusion about satisfaction and climate. They defined organizational climate as:

> . . . a set of attributes which can be perceived about a particular organization and/or its subsystems, and that may be induced from the way that organization and/or its subsystems deal with their members and environment. (p. 256)

With this set, they further structured climate to fit primarily into the "perceptual measurement-organizational attribute" approach.

To summarize, then, three conceptualizations of organizational climate have been represented. These are:

1) the multiple measurement-organizational attribute approach (as exemplified by Forehand and Gilmer, 1964);

2) the perceptual measurement-organizational attribute approach (as exemplified by Campbell, et al., 1970; and by Hellriegel and Slocum, 1974); and

3) the perceptual measurement-individual attribute approach (as outlined by Schneider, 1973).

While these conceptualizations are not independent, they have generally led to different research methodologies, different levels of measurement, and different sets of variables. However, many similarities do exist among the conceptualizations as can be seen by the overlapping nature of the authors' research concerns. Across climate conceptions, these concerns all fall more or less into the following categories:

1) work group differences and identification;

2) shared consensus of perceptions;

3) relative permanence, and stability of the dimensions studied;

4) level of analysis (aggregation of data);

5) perceptual validity and generalization;

6) organizational systems perspective (level of organization); and

7) attitude-perception overlap, or satisfaction-climate confusion.

The alarming thing about these concerns is that, in over a decade of research on organizational climate, few of the measurement and methodological problems have been resolved or even received sufficient scrutiny to result in greater understanding. Some possible explanations for this lack of progress are: 1) limited research group intra-communication; 2) insufficient knowledge of past research; 3) a lack of sophisticated measurement tools and methods; and 4) poor understanding of climate complexity. Further, very few studies have actually reported significant validation results, even though this is critical if the research methods and the results of the studies are to be shown to have long-range utility. Agreement within work groups and between work group differences have also been mentioned as being essential to an understanding of organizational cimate, but no data--other than that on the MAS--have been reported.

Previous research has resulted in some confusion because of the lack of clarity in procedures and goals, with the findings of the research not being convergent. For example, the content and focus of the measuring instruments have not been consistently and systematically organized, including diverse topics as individual reactions to the work environment, descriptions of the work group, and general or abstract characterizations of the total organization. Many of these may be appropriate if treated in a systematic fashion, so that clear implications can be obtained. The MAS scores focus most directly upon management practices (Delegation of Authority, Planning and Administrative Efficiency, Training Effectiveness, etc.), with some individual level

scores (Satisfaction with Pay, Work Satisfaction, etc.) included to define differences between these different types of scores.

These issues, in turn, are related to the level of analysis to which the data are aggregated. Data dealing with individual reactions and preferences (attitudes) are obviously most meaningful when the individual respondent is the unit of analysis, while the interrelationships of work group-focused climate measures and criteria are most meaningful when work group means are used as the unit of analysis. Data on individuals can be aggregated to higher organizational levels with meaningful results only if there are organizational effects which result in significant differences among groups at that higher level. Data on individuals aggregated to the group or higher level will approximate a random distribution of means with limited meaning, unless there are significant effects on the group means, such as management practices, selection procedures, etc. In addition, the nature of what is measured may change as the data are aggregated to higher levels.

The Department of Labor studies using the MAS have begun to yield an understanding of the research problems involved and are presently uncovering the dimensions necessary to provide measurement technology development with sufficiently complex data over time. While the MAS questionnaire falls primarily into the "perceptual measurement-organizational attribute" approach to organizational climate conceptualization, the MAS has cut across the other two approaches and integrated them in different studies and analyses. These studies and analyses have also cut across the research problems stated earlier, investigating organizational climate and differences in management practices across work groups, with a variety of performance criteria.

To illustrate further, in the MAS research the intraclass correlation coefficient has been used to define the degree of consensus within work groups and thus provide information concerning the level to which data should be aggregated. Since wide differences between work groups have been obtained on MAS scores, higher levels of data aggregation, beyond the work group, mask group differences as high and low groups are combined. Typically, high levels of consensus within work groups and meaningful differences among work groups are obtained when the item content is focused upon highly observable organizational procedures or characteristics. For example, the MAS score of Physical Working Conditions has the highest level of agreement among work group members. The results obtained with the MAS indicate that the system is highly sensitive to differences in management practices across work groups which are reliably assessed according to the agreement among observers.

To summarize, these approaches and procedures used in research with the MAS make possible some clear distinctions between organizational climate research and the area of traditional attitude measurement. Specifically, distinctions between climate research and attitude measurements can be differentiated according to item content, focus of measurement, degree of consensus, level of analysis, and validity against organizational performance criteria. The MAS scores have shown significant relationships to a variety of performance criteria, where attitude surveys have been very deficient. Therefore, the MAS studies have led to a reconceptualization of organizational climate in line with the "perceptual measurement-organizational attribute" approach, but extending it.

The MAS is also highly compatible with the needs of employees and management--by producing a feedback system which provides the necessary links to tie together an upward communication system for employees with organizational interventions and individual behavior regulating systems, such as management by objectives (MBO), or organizational development (OD), and the economic regulating and reporting systems--the criterion measures of organizational performance.

The integration of these systems within the organization requires a systems conceptualization of the organization. According to Glover (1975), the rationale for this approach is that:

> The concepts of systems have slowly emerged to a position of central importance in the thinking of social scientists and, more specifically, organizational theorists. Systems thinking is thought to be a more meaningful way to look at complex phenomena, and differs from the traditional analytic method of microanalysis by studying the processes linking the parts together. This shift in emphasis from analysis of parts and quantification of casual relations to knowledge of the whole, not by observing parts, but by observing the processes taking place within the whole has resulted in a different view of organizations. The systems approach maintains that the best way to view organizations is to view them as systems, with emphasis on the inner relationship and interdependency of parts. (p. 1)

Thus, an integrated system of measurement models and methods or informational subsystems (each with demonstrated unique and/or common criterion validity) would lead to more effective organizational functioning and goal attainment through increased capability to integrate all of the functional subsystems. Katz and Kahn (1966) have described these subsystems as production, support, maintenance, adaptive, and managerial. Each of these subsystems has a function to perform for the larger organizational system. Some combination of the systemic models and methods of MAS, MBO, and OD would tend to maximize returns.

Before the scope of organizational climate and its intracacies can be fully grasped, understood, and developed, the following are needed: 1) continued development in measurement technology; 2) studies of sufficient complexity and duration; and 3) models and methods for implementing organizational climate findings in planned organizational change. Such achievements must await the findings of future research, some of which is outlined later in this report.

Organizational Development

Beckhard (1969) defined organizational development as an effort (1) planned, (2) organization-wide, (3) managed from the top, to (4) increase organizational effectiveness, and help through (5) planned interventions in the organization processes using behavioral science knowledge. One goal of organizational development is to change the system. Again, the emphasis is placed on a systems perspective. Schein (1969) amplified this point and illustrated the need for the management of human resources in a systems sense.

> I am not contending that focusing on human processes is the only path to increase organizational effectiveness. . . I am arguing, however, that the various functions which made up an organization are always mediated by the interactions of people, so that organizations cannot escape its human processes occurring between them. Therefore, it is obvious that the better diagnosed these processes are, the greater will be the chances for finding solutions to technical problems which will be accepted and used by the members of the organization. (p. 9)

French and Bell (1973) extended the definition of organizational development such that it included management of organizational culture. Huse (1975) included climate in this definition and stated that systems which don't make full use of modern social knowledge and technology about human motivation cannot appropriately change the climate. French and Bell also stated "that there are three basic steps which must precede the institutionalization of these new social techniques: entry, normative change, and structural change" (p. 13).

French and Bell (1973) and Bowers (1973) discussed the survey-research-feedback system. They primarily focused on this type of "action research," and data feedback in workshops. Cycles like this are generally what is needed to process the inputs and outputs from the integrated measurement system in discussion. Surveys from each measurement/methodological realm yield the data for systematic diagnosis, research, and evaluation which should lead ideally to a feedback system which feeds back to the appropriate user-manager econometric, behavioral, and economic-behavioral interactive data and action alternatives.

In an OD evaluation design, the MAS would be administered just prior to the beginning of any intervention into the organization. The resulting profile across the 19 scores for each work group can be used diagnostically to determine what areas need to be worked on in each individual work group, or any other OD strategy may be used. Since these organizational climate scores can be successfully related to and can predict hard organizational performance criteria, an effective and successful OD intervention strategy may result in increased scores across the work group profiles over time.

The MAS system allows interventions on individual work groups or an organization-wide level just after the managers receive the feedback (with or without the use of the Handbook for Supervisors), which allows some limited types of experimental designs, using control groups (e.g., intervention on 50% of groups, no intervention on the other 50%). If the intervention or treatment is made on an organization-wide basis, then the organizational norm base for producing the two types of MAS scores should increase over time to indicate successful treatment (pre- and post-intervention application of the MAS).

If the intervention is made on only some work groups, then work groups in which intervention is made should obtain higher post-intervention profiles than work groups which received no intervention to indicate success in this design. Both treated and untreated work groups may increase over time for reasons unrelated to the intervention; so this design allows the

consultant to attribute the differential increase in the profiles of the treated work groups to the treatment rather than to unknown forces.

Since the MAS provides feedback at each level of the organization, the system can be easily implemented in organizational development intervention strategies. Glover (1975) stated that "the integrating mechanism in systems is the interrelationship between the parts of the system. The hierarchy within the system due to the ascending order of complexity results in the intermediate structure at each level which constrains and controls all its subordinating systems. This characteristic of systems results in the goals of each subsystem being related to the larger set of goals of the system" (p. 7). The problems of goal integration, management control, and effective intersystem communication of the ES are treated in the next section.

Studies of the Productivity of the ES

Prior research studies of the productivity of the Employment Service have usually focused on subsets of variables that may have an effect on the outcomes of the ES process. Some studies have concentrated on external factors that influence ES operations, others have concentrated on internal factors. Others have been concerned with the type of client that comes to the ES for services. Studies assessing management practices and their relationship to ES outcome performance criteria have been limited.

Much of the research dealing with the productivity of the ES has centered around the Balanced Placement Formula (BPF). The BPF represents a major effort to allocate Federal funds on the basis of demonstrated performance. Thus, the formula serves as an incentive for improvement in the quality and quantity of services rendered. Equally important, the formula reflects national policy and thereby serves to define the goals of the organization and to promote the integration of these goals throughout the organization. In this process, the BPF provides a basis for the state agency to evaluate its results. Considering the complexity and difficulties involved in establishing effective procedures from the national level through state agencies and into approximately 2400 local offices, these goal definitions, integrations, and reward and monitoring functions are extremely important.

The formula was applied in 1975, and subsequently modified in 1976 to reflect a greater emphasis on quantitative and qualitative functions in placements. However, the largest single component in the formula during both years has been the number of placements per man year, which has been extensively studied to understand its determinants and causalities. For example, Englander (1975) found that there was a significant relationship between individuals placed per man year and the percent of employment in manufacturing--corroborating the finding of Fong (1975). These two authors concluded that the ES is better suited to provide placement assistance in those areas where the economy is more oriented to manufacturing activities.

Englander also found a significant positive relationship between individuals placed per man year and the workload of the staff in an office. Apparently, the larger the number of applicants and renewals with whom an ES staffer works, everything else being equal, the easier it is to have higher produc-

tivity on this criterion. The larger the workload, the greater is the likelihood of having applicants whose qualities and experience make them highly employable, and easy to place. However, in this situation, the percentage of all applicants placed is lower. Thus, one goal is attained at the expense of another, which emphasizes the fact that multiple criteria should be used in investigating the effectiveness of an ES office, and as the basis for the goals of the organization.

Workload is an example of a variable that could be used to enlarge a state's share of national Employment Service funding by the state ES administrator. Although some of these variables would differ from state to state, research has shown that short-term placements (Englander, 1975), low-wage placements (Center for Applied Manpower Research, 1973), concentrating on placements in manufacturing (Center for Applied Manpower Research, 1973; Englander, 1975; and Fong, 1975), youth (under 22 years of age) (Englander, 1975), and percent of minorities in the labor force (Fong, 1975) are other examples of variables that could be manipulated to obtain a higher Balanced Placement Formula score, and more Federal monies.

The Shelley Report (1975) studied the Balanced Placement Formula in great detail and found that the BPF could be improved, and recommended that:

1) individuals placed per man year be maintained as a performance criterion;

2) individuals placed as a percentage of the number of unemployed individuals should be used as a performance criterion; and

3) job openings filled as a percentage of nonagricultural wage and salary employment also be instituted as a performance criterion.

Shelley found that the BPF allocation was not significantly affected by the percent of veterans, poor, handicapped, UI claimants, and older workers placed. Another key finding of Shelley was that the performance measures were influenced by various environmental factors. About two-thirds of the variation in productivity across states was due to the environmental factors. If this is so, care must be taken not to penalize the budgets of lower productivity states, when the lower productivity is due to circumstances beyond their control. The unemployment rate is an inadequate reflection of the influence of these external factors. For example, the Center for Applied Manpower Research (1973) found that the unemployment rate exerted a significantly negative influence on a state agency's placement productivity, but Fong (1975) did not find statistical significance for this variable.

Englander (1975) found a significant negative relationship between individuals placed and per capita income. Englander also stated that a given group might be difficult to place either because it requires a considerable amount of counseling and other support services or because the attitudes of would-be employers towards that group are not favorable.

Of the various authors reviewed, only Weiner and Powel (1976) mentioned the social value of an ES placement. The BPF does not take this into consideration, and providing a quantitative measure of this social value would have to be subjective, so it would not be an integral part of most researchers' investigations of ES effectiveness. If the function of the ES is seen to be

that of a labor exchange, providing a match between applicants and their appropriate labor market opportunities both in the labor force and out of it, then the labor exchange outputs should benefit job seekers, employers, and society.

The social value accrues not only monetarily, but also psychologically, from an individual's being able to contribute something worthwhile to himself and to others. Not being able to be a contributing member of society has an impact on every other area of a person's life, and there is no way that this can be quantified.

Even without considering the social value of ES placements, Moore (1966) concluded that the dollar value of benefits received from ES placements probably exceeded their costs. Moore looked at the question of general productivity on the basis of value received for resources expended by deriving cost-benefit ratios for placements by the state Employment Service. He found that the cost per placement varied substantially from state to state, probably more widely than the value of benefits from state to state, but that the ES does provide a worthwhile service at reasonable cost.

The Employment Service continues to be an object of criticism, however, regardless of demonstrated levels of productivity. This was recently pointed out in an article in The Wall Street Journal (Miller, 1976), which noted that the Employment Service is seen by employers and employees alike as an agency for low-skilled laborers. Despite Federal legislation that Federal contractors must list positions with the ES, many companies do not do so, and look upon the ES as a pressure group, influencing the type of employee that can be hired by the company.

These studies of the productivity of the Employment Service have gone some distance in explaining how the ES functions, and why certain problems have arisen. However, the studies have not been very inclusive, and have not developed strategies for improving the productivity of the ES. A somewhat more inclusive study is presently being conducted by Van de Ven (1975), whose objective is to measure scientifically and explain how situational and organizational characteristics of Job Service offices and units affect performance over time. The organizational factors being measured include: 1) situational factors; 2) overall office structure; 3) structure of each unit in office/bureau; 4) linkages within and between units, levels, and other agencies; and 5) performance.

Any study of a public organization, as opposed to a private industrial organization, is influenced subtly by certain basic differences between the two. These differences influence the results, the theoretical explanation of the findings of the study, and action strategies that can be taken to counter any negative findings. Giblin (1976) noted that there were 5 basic areas that had to be considered, when studying a public organization:

1) Organizational variation--the public organization involves a greater variety of individuals and groups with different and often mutually exclusive sets of interests, reward structures, and values. Role conflicts between legislators and high-level administrators, the commitment of career officials to pet programs, a weak chain of command, and the number of interest groups are all part of the organizational variation in the public sector that influences organizational development.

2) Long-range planning--the uncertainties of the yearly budget process make long-range planning a very tenuous practice. Most public agencies basically do their planning on a year-by-year basis. Because the continuity of organizational development is always in doubt, the influence of OD on public organizations is reduced.

3) The Civil Service system--compromises the public administrator's responsibility to manage his organization, by limiting his authority to hire the persons he wants at all but the very highest (i.e., appointed) levels. It limits his authority to discharge staff for poor performance, and it limits his discretionary power to advance staff for outstanding performance. The Civil Service system, in effect, unionizes the entire organization.

4) Crisis atmosphere--has resulted from the external attacks by many client groups that have taken legal action against "human resource agencies" that do not seem to serve them effectively. In such a crisis atmosphere, public agencies tend to place even greater stress on procedural regularities and caution. This excessive reliance on established practice runs counter to OD goals, which stress management according to relevant objectives.

5) Organizational "style" and effectiveness--that static style, low propensity for program change, and general ineffectiveness of most public organizations render them very poor candidates for the realization of successful OD efforts. To a considerable degree, this "style" is a function of patterns of administrative regulations, which are usually spelled out in minute detail in legislation.

In addition to these five areas, Aller, Mayall, Mitchell, and Roberts (1975) found another area that needs to be considered in any study of an organization such as the Employment Service:

6) The reliability of the data--all of the ES-generated data have to be used cautiously, since there is some question as to its reliability. There is a strong incentive to underreport new applicants, because the time required to fill out ESARS data forms significantly reduces the time available for more placement-oriented activities. As a result, forms are frequently not filled out for individuals for whom little chance of placement is seen. The extent of this kind of underreporting apparently varies substantially from office to office.

Despite these barriers to research concerning the Employment Service, and the criticisms of the system from various sources, research concerning the productivity of the ES continues on many fronts and on many levels. Reports by Frey (1976), Giblin (1976), and Meike, Pyles, Kauffman, and Horowitz (1976) have begun with definitions of the mission and functions of the ES, and have attempted multivariate studies of the effectiveness of the ES. The realization that the objectives of the ES need to be examined, and the realization that many different criteria, control score variables, and predictors need to be examined are all hopeful signs that the research on the productivity of the ES in the future will produce more meaningful and more relevant results.

IBRIC Studies of Organizational Climate

IBRIC's earliest investigation of organizational climate (Ellison, McDonald, James, Fox, and Taylor, 1968) involved an extensive analysis of various criterion measures of performance and appropriate control scores in a medium-sized government research laboratory. The criterion measures included supervisory and peer evaluations, quantity and quality of publications, awards won, salary advancement measures, etc., while the control scores included such variables as age, education, experience, size of work group, type of research conducted, etc. With this foundation of measures of research products and research performances, an extensive climate questionnaire was developed which included measurement of style of supervision, compatibility of individual and organizational objectives, group interrelationships, self-descriptions, etc. The relationships of these climate questions to the performance criterion measures were analyzed to determine the factors which facilitate, inhibit, or are associated with different kinds of contributions made in a research laboratory.

The results of this study indicated that data concerned with the reaction of the individual to different aspects of organizational climate were more predictive of scientific performance than were straight descriptions of the characteristics of the organization, supervisors, peer relationships, etc. Information concerned with the discrepancy between the actual situation, as the scientists described it, and the ideal situation, as the scientists would like to see it, were not as predictive of the performance measures.

The analyses of the data from this study led to the conclusion that certain other steps had to be taken to develop an instrument that could measure organizational climate to the degree necessary that changes in human resource management could lead to improved organizational climate, and, consequently, higher levels of organizational performance. One of these steps was level of analysis. Instead of determining the organization-wide level of organizational climate, the instrument should be able to measure the climate of the work group in which the individual is located. Several work groups which were under the general supervision of a higher-level supervisor could be combined to give a more global indication of organizational climate.

Subscores or scales based on the content categories of the individual items were another step that had to be done. These scales would measure various facets of organizational climate that have an effect on the functioning of the individual and of the work group.

The results of this study and the recommendations for further development of the climate instrument led to the development of the Management Audit Survey. The MAS is described in great detail in the next section of this report.

CHAPTER III

THE MANAGEMENT AUDIT SURVEY

Introduction

When the Management Audit Survey was first conceived, the general goal was to make a preliminary review or survey of management practices, using employee descriptions to identify problem area organizational components, which could then be subject to more thorough audit procedures. The survey of management practices was to be applied broadly to large organizational components at an economical rate using advanced computer techniques. At that time, some survey questionnaires were in use, but they were not technically sophisticated, nor were the responses to the questionnaires efficiently processed through the use of computer technology. As a result of previous studies in organizational climate and sophisticated data processing capability, the Institute for Behavioral Research in Creativity (IBRIC) was contacted to explore the feasibility of developing a system that would not have the limitations of the then available instruments.

Although the analysis of management procedures was a topic of strong interest to both the researchers and the contractors (the Directorate of Audit and Investigations), the combination of audit and organizational climate initially represented a relatively unique blending of perspectives. During the course of subsequent discussions, however, extensive common ground was established to make the development of such an approach both feasible and attractive for its applications and potential utility; e.g., in improved management, using employees as observers of organizational procedures, improving performance, and, in general, stimulating more effective use of personnel resources.

Continued discussions, pilot studies, and a preliminary validation study resulted in the development of the Management Audit Survey system as described in this chapter. The system operates by providing an analysis of management procedures of small work groups at the bottom of the organization up to the top levels and includes subordinate components of work groups at each level of the organization. That is, higher level supervisors receive reports of their immediate work group as well as a consolidated report on all subordinate work groups. In this manner the organizational climate of the work groups within that organization and of the organization itself can be examined. The employees were selected as the group to survey, since they are the most directly affected by human resource management policies and practices. The employees live with these policies and practices, and observe them on a daily basis, and thus they are in an excellent position to provide an overall picture of the nature of management practices in an organization.

The system surveys a wide variety of management practices. The 19 score areas covered by the system are generally applicable across widely differing kinds of organizations. The individual items are generally concerned with

perceptions of relevant management behaviors, as opposed to individual feelings of satisfaction or reactions to management behaviors which were retained in only a few score areas.

A score for each work group, or organizational component, is obtained by analyzing the answers of the employees to the questions in each management area. The average scores for the employees in each work group are then compared to organization-wide and divisional averages, using the two scoring systems described below. Each work group of 5 or more people is included in the analysis. The N restriction ensures the anonymity of the responses of the employees, and averages the responses, so that an extremely deviant individual will not unduly affect the score.

The data collection has been handled on a state by state basis, with the project monitors of the Directorate of Audit and Investigations of the Department of Labor providing both formal and informal guidance to the participating state personnel. These state personnel are in charge of the actual administration of the MAS. Each employee throughout the state is given an addressed envelope in which the completed answer sheet is placed. This procedure ensures the confidentiality of the responses of the individual employee. These envelopes are mailed to IBRIC for scoring and analysis. Upon their arrival, the answer sheets are examined and "cleaned up" to ensure that all intended responses are read by the optical scanner.

There has been a return rate of over 90% from every state surveyed, except for one, which had a return rate of 80%. This very high return rate indicates the general efficiency of the system now being used, and the general acceptability of the questionnaire to participating employees.

Scoring Procedures of the MAS

Two different scoring methods are used to report the MAS results. Each scoring method provides a comparison for each work group against two different organizational components. For instance, in the Department of Labor, each unit was compared on each score to Department-wide averages and to agency-wide averages. The scoring methods are:

1) Percentile ranks. This scoring method takes into account positive, neutral, and negative responses and permits the supervisor to see how well a particular unit did in comparison with all of the units in the Department or agency. In this scoring method, the Department or agency average is always the 50th percentile. If a unit has a score of 50 or better in any management area, that unit scored as well or better than the average of all the employees in the Department or agency. Any score within the range 40-60 should generally not be considered as being either particularly high or low since they are close to the Department average.

2) Percent favorable score. This scoring method shows the actual percentage of favorable responses chosen by employees in describing a management area in their organization. In this scoring method, the two most positive responses for each question are used. This method provides information about the overall level of performance in each score area for the total organization and smaller components. This is in contrast to the percentile rank score

where the score for the total organization is at the 50th percentile. A unit could have a low percentile rank compared to the Department, but a high level of favorable responses. This could indicate that this management area is not of immediate concern to the supervisor.

Interpretation of the Scores of the MAS

Since the two scoring systems provide different kinds of information, the systems can be looked at individually, but provide more complete information when they are examined together. The percentile rank score provides comparative information on how a unit is viewed by employees relative to all the units in the Department or agency. The percent favorable score shows the actual percentage of favorable responses made by employees in the organization.

In analyzing the two scores, the supervisor should look first at the percent of favorable responses. If the percentage for the unit is low in a given management area, for example, 30%, some attention should be devoted to that area by the supervisor. Even if the unit were somewhat above average on percentile rank, some improvement would still be needed in the unit because of the low percentage of favorable responses.

On the other hand, if the percent favorable score for the unit is high (70% or higher), then a relatively low percentile score for the unit may not be a cause for concern. The overall level of achievement might be so high in the Department that a low percentile rank might be caused by the high overall standing of the Department rather than dissatisfaction within a particular work group.

The supervisor must review the results obtained, and decide which, if any, of the management areas are in need of attention. Whether any attention should be devoted to a particular area would depend upon the score obtained, and the importance of the score area to overall effective performance in the unit. Only a few areas should be selected for improvement since changes in a large number of areas would be difficult to achieve within a reasonable time period. Generally speaking, those areas in which the work group has less than 50% favorable responses and where the unit falls below the Department average will be those most in need of attention.

Development of the MAS Scores

The development of a highly sophisticated instrument such as the MAS requires a number of relatively complex statistical procedures reviewed in this section. Initially the factor analysis results on the item level data will be presented using individuals as the unit of observation. This analysis was used to map out the score areas and to identify target items which became the subject of a second kind of statistical analysis--the item analysis procedure--which will also be discussed. As a result of the three separate item analyses which were carried out to assign items to specific score areas, the 19 score areas were finalized and are presented in this chapter. Following the presentation of the score areas and their interrelationships, the next section in this chapter will describe the scoring procedure for the

MAS. This will be followed by a presentation of the reliability of the MAS in terms of different reliability procedures.

Factor Analysis of MAS Items

As a result of the literature survey, continued discussion with DOL personnel, and the pilot study results, 19 score areas were selected for measurement by the MAS. Each score area was defined tentatively with five to seven items per score. A principle components analysis was carried out on the item level data using the responses of 5,018 employees of the Department of Labor. Briefly summarized, this analysis resulted in 14 factors that generally corresponded to the a priori score area with four or more items defining each factor. The factors following were clearly identified.

- Delegation of Authority
- Supervisory Effectiveness
- Planning/Administrative Efficiency
- Climate for Innovation
- Work Satisfaction
- Performance Feedback
- EEO for Women
- EEO for Minority Groups
- Opportunity for Promotions
- Satisfaction with Pay
- Physical Working Conditions
- Co-Worker Cooperation
- Operational Efficiency
- Workload Balance

In view of the results found in previous studies, it is particularly noteworthy that the individually focused score of Work Satisfaction and Satisfaction with Pay were identified as separate factors independent from the other score areas. These results indicate that areas of traditional concern in attitude surveys can be identified separately from those factors concerned with organizational climate and management procedures.

The following score areas did not emerge as separate factors in the analysis.

- Upward Communication
- Morale
- Fairness of Management
- Training Effectiveness
- Downward Communication

The items defining these five score areas generally tended to load upon the Supervisory Effectiveness factor or upon another factor which was concerned with a particular source of information, that is, higher level supervisors. Items that were concerned with higher level supervisors or top management which loaded on this one factor were found in the Upward Communication, Downward Communication, Morale, and Fairness of Management score areas.

A review of the item content indicated that the factor could be well described as Employee-Management Interaction.

A review of the data indicated that these original score areas could be maintained through item analysis and later more clearly defined by the development of new or revised items. Since it was anticipated that separate factors could be obtained for these score areas, and since having the score areas separate would simplify and clarify the feedback procedure by providing specific recommendations rather than diffuse global descriptions, it was decided to pursue the development of these areas as separate scores. Generally, the item analysis procedures followed revealed relatively clearly defined score areas, especially for the Training Effectiveness score. In the principle components analysis, only two Training Effectiveness items were included, since the remaining items in this score area had a nonlinear response alternative. In the cases of the other score areas, generally satisfactory convergent and discriminant validity results were obtained through the item analysis procedures for the items in the separate score areas.

Description of the Item Analysis Procedures

The general procedure using item analysis techniques to develop the final score areas involved selecting items within each score area which correlated higher with each other (convergent validity) than with items in other score areas (discriminant validity). There were generally at least two items in each score area that met this standard. These items that met the desired standards of convergent and discriminant validity became target criteria for an initial item analysis procedure. In this procedure, all items in the MAS were then correlated with these initially defined target area scores. Items were then assigned to scores on the basis of the score area to which they were most highly related. Items which did not have patterns of convergent and discriminant validity sufficient to be assigned to a score area were then examined in a second item analysis run where the initial target score areas were expanded to include the items that had been identified in the first item analysis run. At the end of the third item analysis, final decisions were made on the assignment of all items to all score areas.

An example of the final result of this procedure is presented for the Training Effectiveness score in Table 2. In the upper part of the table are all the Training Effectiveness items and the correlations across the columns in the table indicate their relationships above .40 to each of the score areas. It will be noticed that the relationships of the training items to the training scores are substantially higher than their relationships to any other score areas, indicating the satisfactory nature of the convergent and discriminant validity analysis as developed in the item analysis procedure. Although the training items and the correlations with the training score are somewhat inflated since they are part-whole correlations, the same pattern existed during the earlier item analysis runs when these were not part-whole relationships. In the lower part of the table, starting with item 1, are indicated all other items in the MAS which correlated above .40 with the Training Effectiveness score and how these items were related to all of the MAS scores. These data were used to review all of the other MAS items making sure that they were correctly classified and that they could not be more

Table 2

Item Test-Eta Coefficients for Training Effectiveness*

ITEM #	MAS SCORES 01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
19			45				78	41				48	40		40				
25	40		49		40		81	45				48	40		42				
50	40		43	42	41		76	40				49	46		41				
60	42		46	44	41		78	40				53	44		43				
94	40	40	47	45	43		76	41				48			43			42	
1	47	40	47		45		40					44	43		71		52	46	
15	54	43	71	40	50		50	53				59	48		47		45	42	
20	47		81	41	45		48	49				50	44		43			44	
24	51	43	72		49	40	45	51				51	48		50		41	42	
30	49		46	40	42		49	43			44	75	61		47				
39	44	72	44	41	41		40					49	44		42				
43	55	45	83	45	51		48	51				53	49		53		50	48	
44	51	50	53		79		44	52			42	53	58		49		42	40	
46	48	42	48	40	48		46	43				77	53		43				
49	53	42	43		48		43	42			47	59	83		48				
51	55	42	43		54		44	43			50	58	84		50				
55	53		41		46		41	48			79	48	53		52				
56	59	46	52	40	48		48	48			47	61	58		52		42		
57	49	40	52		44		43	65			43	49	48		46				
63	44	65	48	40	44		47	42				53	42		43		40	42	
65	51	45	68	45	49		52	59				57	47		46		40	42	
66	56	41	44		47		47	45			53	58	68		55				
68	44	40	51	77	40		48					50	41		47		43	47	
71	47	48	47		56		41					46	43		50		80	57	
76	53	41	82	42	46		46	48				50	44		45		40	43	
77	75	46	56		51		42	44			41	50	48		53		51	43	
78	51	50	48		75		41	46			43	49	58		50		43	41	
79	44	45	46		79		43	49				46	50		46		43	40	
81	43	42	47	69			43					48			42				
83				71			41					41							
85	40	44	48				44	40				66						42	
89	49	40	44	44	40		46	41			40	77	49		45				
90	50	43	81	49	46		49	48				53	44		46		42	45	
95	54	46	64	40	64		50	59			43	53	54		50		41	40	
97	56	48	54	46	53	41	49	45			46	53	53		82		55	48	
99	50	43	56		52		51	81			43	55	50		47				

*Only item-score etas above .40 with Training Effectiveness were used.

appropriately assigned to a particular score area. This item analysis procedure was followed for each of the MAS scores before final decisions were made about assigning items to a particular score area. As a result of this analysis, the final score areas described later in this chapter were developed.

An example of an item analysis printout with location of various statistics indicated is presented in Table 3. These data resulting from item analysis procedures provide very comprehensive information about individual items and their relationships to all score areas. Included in the analysis are information concerning the number of subjects, the percentage responding, and the percentage responding to each alternative, the item criterion eta providing information about nonlinear relationships, biserial and point biserial correlations for each alternative with each target criterion and other supplementary information which provides for a very thorough analysis of individual items.

The end result of this item analysis procedure was the development of the 19 score areas included within the MAS.

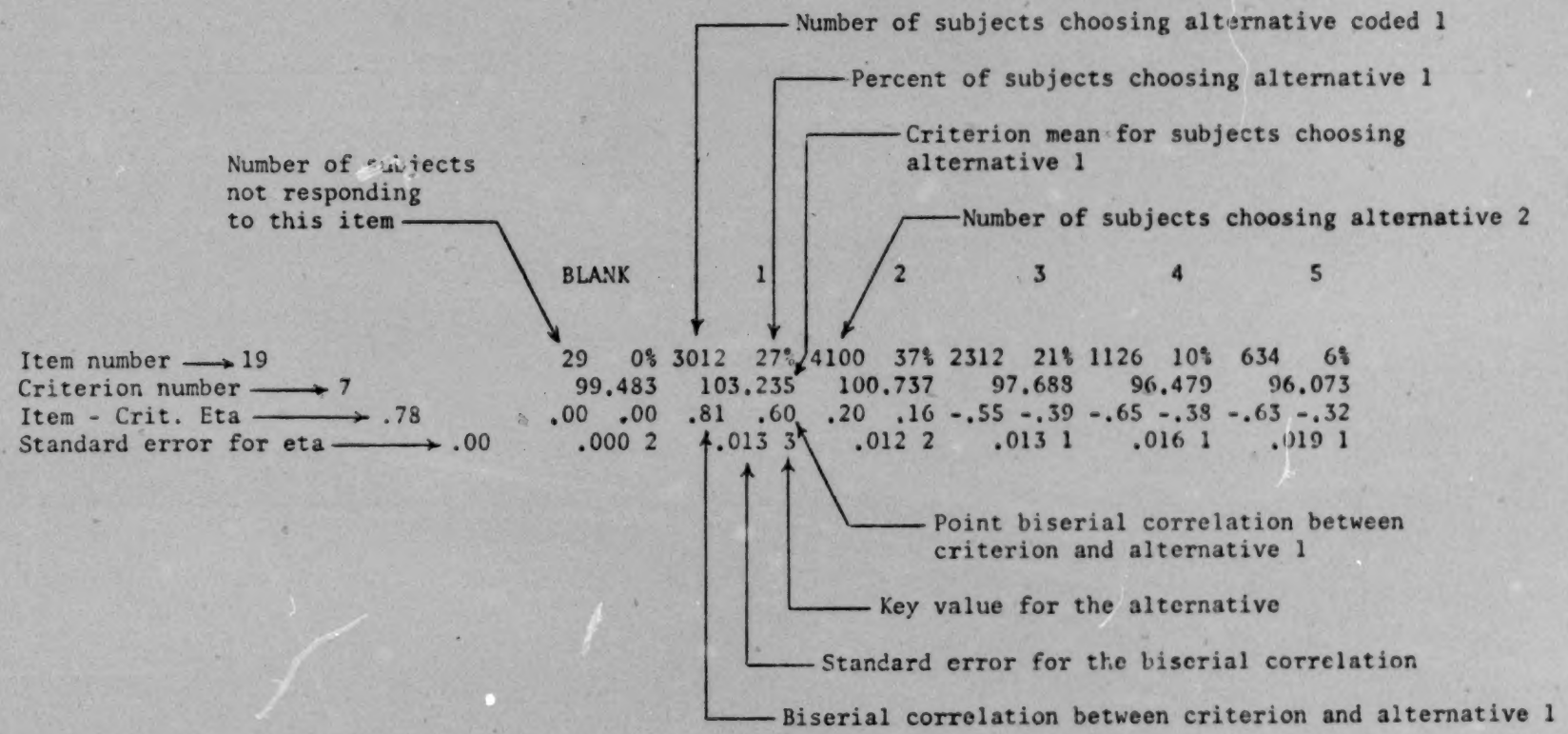
Description of the MAS Score Areas

The following descriptions of the MAS scores were taken from the MAS Handbook for Supervisors. These descriptions provide a definition of each score area and list the items that were included to assess each score area. Also listed are the score areas that correlated most highly with each MAS score. These correlations were based on the intercorrelations among MAS scores and other variables across work groups with a total sample size of 1,261 work groups. Since these relationships were based on larger samples than were available at the time the Handbook for Supervisors were developed, there are some slight differences in these score areas listed. A complete table of score interrelationships is presented in Appendix A which also includes a presentation of the intercorrelations among MAS scores across individuals. This later table is based on an N of 12,131.

1. Fairness of Management is a measure of the degree to which management is perceived as fair and just in its treatment of employees (questions 13, 67, 77, and 82). This measure includes the extent to which fairness, and not office politics and favoritism, governs promotions and other job functions (such as being selected for training, or having extended lunch hours, leave or other matters overlooked). It also included the extent to which credit is given to employees for work well done. As might be expected from the factor analysis results, where Fairness of Management was not a clearly defined factor, this score had a number of fairly high relationships with other MAS scores. It was most closely related to: Upward Communication (.69), Morale (.67), Downward Communication (.65), Supervisory Effectiveness (.61), Delegation of Authority (.59), Peformance Feedback (.59), and Co-Worker Cooperation (.59). It is particularly noteworthy that Fairness of Management is viewed by employees as being a key factor in influencing the description of a number of other score areas, largely involving communication and morale. Certainly Fairness of Management appears to be a key factor in maintaining effective operational procedures from the employee's viewpoint.

Table 3

Example of Item Analysis Printout Showing
Location of Various Statistics


Number of subjects choosing alternative coded 1
Percent of subjects choosing alternative 1
Criterion mean for subjects choosing alternative 1
Number of subjects choosing alternative 2
Number of subjects not responding to this item
BLANK 1 2 3 4 5
Item number → 19 29 0% 3012 27% 4100 37% 2312 21% 1126 10% 634 6%
Criterion number → 7 99.483 103.235 100.737 97.688 96.479 96.073
Item - Crit. Eta → .78 .00 .00 .81 .60 .20 .16 -.55 -.39 -.65 -.38 -.63 -.32
Standard error for eta → .00 .000 2 .013 3 .012 2 .013 1 .016 1 .019 1
Point biserial correlation between criterion and alternative 1
Key value for the alternative
Standard error for the biserial correlation
Biserial correlation between criterion and alternative 1

2. Delegation of Authority is a measure of employee perceptions of whether they have adequate authority to resolve work problems independently (questions 39, 59, 63, and 96). This measure includes the authority given employees to plan their work independently and decide how the work should be done. It also is a measure of the extent to which lines of authority and responsibility are clearly defined within the unit. As would be expected, the Delegation of Authority score was most highly related to Climate for Innovation (.68), indicating the importance of personal freedom and organizational support for innovative activities. The score was also highly related to other factors involving personal commitment, such as Morale (.63) and an important component of Morale, Fairness of Management (.59), followed by other communication and organizational process measures including Upward Communication (.59), Downward Communication (.57), Co-Worker Cooperation (.54), and Operational Efficiency (.54).

3. Supervisory Effectiveness is a measure of employee perception of the general effectiveness of supervision within the unit (questions 20, 24, 43, 76, and 90). It measures the quality of supervisory review and follow-up of work done within the unit, the effectiveness with which work is organized and scheduled, and how the supervisor aids in solving work problems. It is also a measure of the immediate supervisor's overall influence on the way people in the unit perform. This score had a wide variety of important relations with other MAS scores. It was most highly related to Downward Communication (.63) and Operational Efficiency (.62) and was also related to Fairness of Management (.61), Training Effectiveness (.59), and Performance Feedback (.59). Since the supervisor is the center of interaction between employees and management, the pattern of relationships obtained followed that which would be expected for this measure.

4. Planning and Administrative Efficiency is a measure of employee perception of the overall effectiveness of planning and the level of efficiency within a unit (questions 16, 68, 81, and 83). The measure includes the amount of time spent doing unnecessary paperwork, the amount of time wasted due to poor planning, the number of times poor planning necessitates changes in instructions after work has begun, and the degree to which the rules and procedures of a unit facilitate or inhibit effective work performance. The Planning and Administrative Efficiency measure, then, assesses the kind of planning structure which characterizes work group activity and, as such, it was most related to Downward Communication (.56), Training Effectiveness (.53), and Supervisory Effectiveness (.52).

5. Climate for Innovation is a measure of employee perception of the general level of emphasis on and openness to the development of new ideas and approaches to work problems (questions 44, 64, 78, and 79). The measure reflects how often discussions are held on new ways of doing things, how often good ideas are sent up to the proper level for action, and how receptive the unit is toward new ideas and approaches. Climate for Innovation had a pattern of relationships similar to that of Delegation of Authority mentioned earlier, correlating most highly with Delegation of Authority (.68) and with Upward Communication (.68), which in part includes receptivity to employee suggestions and ideas, as well as Morale (.61), Performance Feedback (.59), Co-Worker Cooperation (.58), and Operational Efficiency (.58).

6. Work Satisfaction is a measure of the employees' reported general level of satisfaction with their work (questions 10, 18, 27, 58, and 73). It mea-

sures the extent to which the employee finds his or her work both interesting and enjoyable, how often the employees feel that the work offers the chance to accomplish something, and how much overall satisfaction they gain from the work itself. The individually focused Work Satisfaction measure had a pattern of relationships which integrated the concern of the individual and the organization. The score was most highly related to Morale (.59) and Upward Communication (.49), indicating the extent to which the employee derived satisfaction from involvement with the organization and acceptance of the organization of the individual's ideas and contributions. It was also significantly related to other scores which are of concern to the individual and the organization, i.e., Opportunity for Promotion (.45), Downward Communication (.45), and Delegation of Authority (.43).

7. Training Effectiveness measures employee perceptions of the effectiveness of training given to members of the unit as well as how well training needs are recognized (questions 19, 25, 50, 60, and 94). The measure considers on-the-job training, training for new employees, training for new work methods and procedures, and the adequacy of the training received. This score was most closely related to: Downward Communication (.67), Supervisory Effectiveness (.59), Upward Communication (.57), Morale (.57), and Planning and Administrative Efficiency (.53). Thus, the Training Effectiveness measure was related to variables which have a high component of structure and emphasis upon obtaining organizational goals, e.g., the relationships with Downward Communication, Supervisory Effectiveness, etc.

8. Performance Feedback is a measure of employee perceptions of the quantity and quality of the work performance discussions held with employees in the unit (questions 38, 57, 87, and 99). As such, the measure assesses the number of times work performance is discussed with an employee; to what extent the information provided is useful and yields practical suggestions for improvement; and how employees react to discussions of their work performance. As would be expected, this aspect of communication--Performance Feedback--was related to other communication scores, specifically Downward Communication (.60), which measure the general flow of information downward to the employee, and Upward Communication (.60). It also had relationships to a variety of other scores as would be expected, including Fairness of Management (.59) and Supervisory Effectiveness (.59).

9. Equal Employment Opportunity for Women is a measure of employee perception of the general effectiveness of the equal opportunity programs for women in the Department and the unit (questions 8, 28, 33, 45, and 69). The measure includes the extent to which women have the same opportunity as men to be hired and promoted to jobs within the unit, to receive training, to become supervisors, and the general level of success of the Department's equal opportunity for women program. This Equal Employment Opportunity for Women score was basically a program evaluation measure which, as would be expected, was most related to another program evaluation measure for assessing the effectiveness of the minorities program (.54) and to Fairness of Management (.37) as well as Upward and Downward Communications (.34 and .36, respectively).

10. Equal Employment Opportunity for Minorities is a measure of employee perception of the general effectiveness of the equal opportunity programs for minorities within the Department and the unit (questions 14, 41, 48, 75,

and 91). The measure considers the extent to which minorities have the same opportunities as others to be hired and promoted to jobs within the unit, to receive training, to become supervisors, and the general level of success of the Department's equal opportunity for minorities program. This management area was most closely related to: Equal Employment Opportunity for Women (.54), Upward Communication (.27), Fairness of Management (.26), and Downward Communication (.26). This program score on minorities was most highly related to the other program score on women with the next most highly related measures at a considerably lower level of relationship.

11. Opportunity for Promotion is a measure of employee perception of the general level of promotion opportunity within the unit and the Department (questions 31, 47, 55, 70, and 88). As such, the measure includes promotion opportunities in specific lines of work, opportunity for promotions within and from the work group, whether it is worthwhile to work hard for promotions, and whether the opportunities for promotions encourage the employee to stay with the unit. This management area was most closely related to: Morale (.66), Upward Communication (.60), Downward Communication (.51), Fairness of Management (.50). Thus, the score area on Opportunity for Promotion seemed to be most closely associated with measures that involved the acceptance of individuals into the organization and the extent to which he feels involved with and recognized by management. The correlations with Morale and the communication measures reflect this orientation and these were followed by the Fairness of Management score, also an expected correlate of an Opportunity for Promotion score.

12. Downward Communication is a measure of employee perception of the abilities of supervisors at all levels to communicate successfully with employees at lower levels (questions 30, 46, 85, and 89). It measures whether employees know what results are expected from work assignments, how often employees are informed in advance of changes affecting the unit, how often an explanation of such a change is given, and how effective high level supervision is in keeping lower-level employees informed. The Downward Communication score was most highly related to other scores which involved a communication component, specifically, Upward Communication (.73), Training Effectiveness (.67), Fairness of Management (.65), and Supervisory Effectiveness (.63).

13. Upward Communication is a measure of employee perception of the degree to which management at all levels is interested in and aware of employee attitudes, problems, and ideas (questions 49, 51, 29, and 37). It measures the extent to which higher-level supervisors and top management are willing to have lower-level employees express their ideas about problems as well as their willingness to consider and discuss these ideas seriously. This Upward Communication score had a somewhat different pattern of relationships than the Downward Communication measure, although the two were highly related to each other (.73). The Upward Communication score involved Fairness of Management (.69), Climate for Innovation (.68), and Morale (.68), which represented a somewhat different pattern of relationships from the other communication measures.

14. Satisfaction With Pay is a measure of employee perception of the general adequacy of their pay (questions 5, 26, 40, 61, and 84). The measure includes perceived adequacy of pay in relation to assigned work, compared to

other similar jobs, and to the local cost of living. It is also a measure of how pay affects employees' attitudes toward their work. This Satisfaction with Pay score was the other measure which was largely focused on individual as opposed to organizational characteristics and it had a pattern of relationships with scores which were of concern to the individual, namely, Opportunity for Promotion (.38), Morale (.34), and Work Satisfaction (.31).

15. Morale is a measure of employee perception of the general state of morale in the work unit (questions 1, 32, 93, and 97). It measures the extent to which employees compare their work group favorably with other groups as a place to work; see themselves as having a good future in the organization; and would stay with the unit if offered a similar job elsewhere at the same pay. This management area was most closely related to: Upward Communication (.68), Fairness of Management (.67), Opportunity for Promotion (.66), Delegation of Authority (.63), Downward Communication (.63), and Climate for Innovation (.61). Thus, the Morale score was of pervasive importance in terms of a substantial number of variables which had high relationships. These relationships cut across organizational characteristics involving communication and fairness as well as characteristics important to the individual, such as Opportunity for Promotion.

16. Physical Working Conditions and Equipment is a measure of employee perception of the overall quality of physical working space and equipment (questions 7, 21, 36, and 72). It is a measure of the quality of light, heat, air equipment, supplies, work space, furniture, and cleanliness of restrooms and other facilities. This management area was most closely related to: Morale (.39), Opportunity for Promotion (.36), Climate for Innovation (.29), and Training Effectiveness (.29). Thus, this Physical Working Conditions and Equipment score had a pattern of fairly limited relationships with the other MAS scores, being most highly related to measures which were of general concern to the individual.

17. Co-Worker Cooperation is a measure of employee perception of the level of cooperation among co-workers in their unit (questions 2, 12, 34, 53, and 71). It measures the amount of free information exchange between workers, the willingness of co-workers to assist each other in completing the work, their ability to work together to accomplish unit objectives, and the extent of any unpleasant disagreements in the group. The Co-Worker Cooperation measure was a key factor in the Operational Efficiency measure, correlating more highly with Operational Efficiency (.68) than any other measure. It was also related to other measures concerned with important organizational characteristics such as Fairness of Management (.59), Climate for Innovation (.58), and Morale (.57).

18. Operational Efficiency is a measure of employee perception of the work group's ability to produce high level work effectively (questions 11, 17, 62, 80, 86, and 92). It measures how well the group handles difficult projects; solves problems that arise; works under pressure; meets objectives; and readily adopts new, more effective approaches to problems. The Operational Efficiency measure was most highly related to Co-Worker Cooperation (.68), followed by Supervisory Effectiveness (.62) and Climate for Innovation (.58). It is noteworthy that the Operational Efficiency score had such a high relationship with Co-Worker Cooperation. This relationship generally supports the overall emphasis of the MAS on human resources and their effec-

tive use. The other two correlates of this measure involved the center of organization operations--the supervisor--and its orientation toward improvement. Overall, the Operational Efficiency measure appears to have a very meaningful pattern of relationships to other MAS scores.

19. Workload Balance is a measure of employee perceptions of the degree to which the amount of work required of the work group is appropriate for the number of employees in the group; this includes whether there are too many or too few employees to handle the heaviest and the usual workloads, and whether there is too little or too much work to be done (questions 3, 23, 42, and 74). Although the Workload Balance score had only limited relationships, the pattern was what might have been expected in terms of employee views of effective matching of work to staff, as it correlated most highly with Morale (.26), Planning and Administrative Efficiency (.25), Satisfaction With Pay (.25), and Training Effectiveness (.24).

MAS Handbook for Supervisors

The MAS Handbook for Supervisors is sent to each supervisor of five or more employees who receives a computer printout of the MAS results. The Handbook provides information concerning:

1) the two scoring methods;

2) the nature of the 19 score areas;

3) the computer feedback report; and

4) suggestions that can be used to counteract low scores.

Reliability of the MAS

In the development of any psychometric instrument, an important consideration is the determination of the reliability of the measures. The analysis of reliability may take different forms depending on the nature of the instrument and the purposes for which it was developed. For the MAS, a minimum level of analysis was needed on the internal consistency of the score areas. For this kind of reliability analysis, the relationships among items defining a score area were examined to determine the consistency with which the area is measured. High internal consistency coefficients can be obtained either through highly related items, or through the accumulation of a large number of items which result in a thorough sampling of the items within each score area.

In either case, the intent is to obtain measures which would be representative of what would be obtained if a larger pool of similar items was used. Internal consistency coefficients for the MAS were determined through the calculation of alpha coefficients (Nunnally, 1970), and are presented in Table 4. In this table, the average item relationships of the items in each score area are also presented. In view of the limited number of items per score area, the alpha coefficients are highly satisfactory. Typically, internal consistency coefficients for most published instruments range in

Table 4

Internal Consistency Coefficients and Mean Item Intercorrelations For MAS Scores

Score		Internal Consistency Coefficients	Mean Item Intercorrelations
1	Fairness of Management	.78	.47
2	Delegation of Authority	.70	.37
3	Supervisory Effectiveness	.88	.59
4	Plan. & Admin. Efficiency	.72	.39
5	Climate for Innovation	.81	.51
6	Work Satisfaction	.89	.62
7	Training Effectiveness	.88	.60
8	Performance Feedback	.76	.44
9	EEO Women	.86	.56
10	EEO Minority Groups	.88	.60
11	Opportunity for Promotion	.84	.51
12	Downward Communication	.74	.42
13	Upward Communication	.78	.47
14	Satisfaction With Pay	.80	.44
15	Morale	.78	.47
16	Physical Working Conditions	.63	.30
17	Co-Worker Cooperation	.83	.50
18	Operational Efficiency	.85	.49
19	Workload Balance	.86	.61

the .80's and .90's, but such coefficients are obtained with more items than are present in the MAS.

Only one of the score areas in the MAS has an internal consistency coefficient below .70--the Physical Working Conditions and Equipment score--and this is not surprising, since items dealing with facilities and equipment, lighting, etc. should not be highly related. The results can be summarized by indicating that the mean alpha coefficient of the MAS scales is .80 and that 11 of the 19 score areas had alpha coefficients of above .80.

The data screening procedure--SPECTR--developed to identify random responses and other forms of bad data also contributed to the reliability of the MAS scores. This procedure will be discussed more fully in a later section of this report.

Another form of reliability, which is crucial when the MAS is to be used for the analysis of work group data, concerns inter-rater reliability. That is, the agreement or the reliability of the observations of employees describing management procedures within a work group must also be high. Obviously, low levels of agreement between observers would indicate individualized reactions to the management environment and would not identify problems which were pervasive to all employees within a unit. The intraclass correlation technique (Haggard, 1958) is an excellent statistic for this purpose, even though the intraclass has been infrequently reported or used in the literature. The intraclass correlation coefficient provides an indication of the inter-rater reliability of the average scores of the work groups studied, as well as a measure of statistical significance of the results obtained. The magnitude of the intraclass correlations obtained are dependent upon the agreement of observers within work groups and the differences between work groups in the scores on any given measure. With high agreement within groups and large differences between work groups, higher intraclass correlations result.

Table 5 presents the average intraclass correlations obtained for the 19 score areas across six states and the Department of Labor. The high intraclass on Morale indicates that the members of a work group agree about the level of Morale present in that work group, and that the level of morale would differ from one work group to another. The low intraclass correlation found on the Satisfaction With Pay score indicates that there is some consistency or agreement within work groups, but that this score cannot differentiate among work groups at the same level as the Morale score.

Since comparable data on intraclass correlations in climate measures have not previously been reported, these results warrant additional discussion. For example, if a random distribution of sample means from work groups were obtained where there were no consistent effects of management that were uniformly or consistently described by employees, the distribution of sample means by definition would approximate that of a normal chance distribution, with no significant differences beyond chance for the work group means. There would also be no significant relationships of the work group measures from the MAS with any type of organizational performance criteria.

If only very slight levels of agreement were obtained or if differences between work groups were only due to classifications of personnel on homo-

Table 5

Average and Range of Intraclass Correlations
for the 19 MAS Score Areas Across Seven Organizations

Score		Average	Range
1	Fairness of Management	.51	.43-.61
2	Delegation of Authority	.56	.40-.71
3	Supervisory Effectiveness	.63	.55-.67
4	Plan. & Admin. Efficiency	.60	.45-.70
5	Climate for Innovation	.58	.35-.75
6	Work Satisfaction	.44	.15-.63
7	Training Effectiveness	.51	.30-.60
8	Performance Feedback	.43	.27-.56
9	EEO Women	.47	.30-.65
10	EEO Minority Groups	.33	.10-.49
11	Opportunity for Promotion	.48	.43-.56
12	Downward Communication	.45	.30-.57
13	Upward Communication	.57	.45-.65
14	Satisfaction With Pay	.47	.32-.63
15	Morale	.68	.60-.75
16	Physical Working Conditions	.72	.58-.80
17	Co-Worker Cooperation	.66	.56-.73
18	Operational Efficiency	.51	.07-.62
19	Workload Balance	.63	.45-.76

geneous individual differences, then large categories of data such as males, females, older workers, certain personnel classifications, etc., would be needed to obtain meaningful and significant relationships with other kinds of variables. This is the typical way in which attitude data are analyzed. However, with significant intraclass relationships as found in Table 5, results can be reliably reported on individual work groups which do result in highly significant statistical differences. The use of the intraclass correlations to assess work group agreement and differences between work groups thus provides a very important assessment tool, and demonstrates a form of reliability and consistency which has not characterized previous research.

The Validity of the MAS

The ultimate purpose of the Management Audit Survey is to improve the use of our nation's human resources. Such an abstract statement of the long-term goal of this research has a number of components when analyzed by operational definitions. Initially, and historically, such studies can be thought of as looking at the analysis of work attitudes and satisfaction by individual descriptions and reactions to standard questionnaire items, which are then used as indicators or tentative indices to provide information about other more distant and abstractly measured criteria, e.g., the satisfaction or dehumanization of the work force in a period of rapid social change.

This level of analysis is concerned with individual perceptions of satisfaction with organizational procedures and the primary focus of analysis is upon the individual and his responses. Alternately, such research can be viewed through an organizational perspective. At this level of analysis, work groups become the crucial component and individual responses are averaged, removing the effects of idiosyncratic perceptions from the analysis. If the ultimate objective of such research is to bring about higher levels of organizational performance, and work satisfaction, then MAS variables must be analyzed through work group data where the relationship of MAS measures to organizational performance criteria and average levels of satisfaction can be examined. Thus, throughout the developmental sequences of the MAS, obtaining access to organizational criteria was an important and necessary step before the MAS could actually be evaluated on the long-term goal of contributing to more effective human resource management as well as being useful at the individual level of analysis.

When the opportunity to study the Employment Service and Unemployment Insurance operations in various states arose, a variety of possible performance measures on these organizations became available. Unfortunately, there was a wealth of information about local office performance, but no systematic treatment of the nature of organizational performance criteria--their limitations of reliability, relevance, redundancy, predictablity, etc., and other standards for performance criteria were not known.

A whole host of measures were collected and reported on local office operations included in the Employment Service Automated Reporting System (ESARS). Essentially, this procedure collected very extensive information of the type of person applying for services, a record of all processes or activities

carried on with the applicant while he was being served or not served, and finally processed or eliminated from ES rolls. Discussions with Employment Service personnel about available data provided generally discouraging information about their reliability, relevance, and contamination with situational effects, etc.; in short, their general utility as indices of either local office performance measures or as criteria which could be used to monitor actual performance and bring about higher levels of Employment Service performance was at least limited.

Ideally, of course, performance criteria can serve as crucial guides for the development of any organization in monitoring its development, evaluating achievement, diagnosing deficiencies or opportunities for improvement, providing feedback about process and outcome measures and integrating these concerns for decision-making at all levels of the organization. In the long run, research on performance criteria should be integrated with research on human resource management in a systems perspective with other management information system data to present information of value to each level of the organization in a timely and clearly understood fashion, to bring about higher levels of performance.

The available data base for an examination of the relationship between MAS scores and various Employment Service performance criteria was obtained in the State of Pennsylvania, where data on 78 local offices were available. In these 78 local offices, the number of MAS respondents varied, depending upon the office, but only offices with three or more people were considered in the analysis. There were a total of 963 employees in these local offices. Data were also available on 539 employees in 73 Unemployment Insurance offices, and 123 employees in 22 employment offices in the State of Missouri.

The procedure followed in carrying out the validation study of the MAS involved computing average scores on the MAS for each local office--a routine procedure in the processing of MAS data--developing criterion measures for each local office, and correlating the sets of measures. Because of the lack of previous research, a great number of possible criterion measures were examined. Because of the extensive nature of these data, only a small portion of the criterion study results will be presented here, that portion that appears to have the most relevance for future research and Employment Service action. Table 6 presents the validity coefficients of the MAS scores with selected performance criteria.

These results indicate that the percent of first payments of Unemployment Insurance completed on a timely basis, according to the state criterion, was predictable by a wide variety of MAS scores. Significant zero-order validities were obtained for 14 of the 19 MAS scores--e.g., Operational Efficiency ($r = .47$), Training Effectiveness ($r = .37$), Fairness of Management ($r = .34$), etc. This criterion is largely one involving completion and processing of paper work, according to administrative procedures. Thus, there appears to be some indication of construct validity in the nature of the MAS-performance measure relationships.

The two criteria obtained from Missouri were the intake cost per applicant and the employment cost per applicant. Both of these measures indicated the costs assigned to this function by the accounting system. Since these criteria were stated in cost results, relationships with the MAS scores

Table 6

Validation of MAS Scores for Different Organizational Performance Criteria and Geographical Locations

MAS Score	% 1st Payments Timely[1]	Intake Cost Per Applicant[2]	Employment Cost Per Applicant[2]	Job Development Placements per Applicant[3]	Referrals Per Placement[3]	Placements per Applicant[3]	Service per Applicant[3]
1. Fairness of Management	.34**	-.44*	-.13	.18	-.32**	.21	.18
2. Delegation of Authority	.34**	-.37	-.10	.16	-.27*	.26*	.23*
3. Supervisory Effectiveness	.34**	-.37	-.21	.17	-.24*	.27*	.14
4. Planning & Admin. Effic.	.29**	.03	.11	.15	-.37**	.29**	.16
5. Climate for Innovation	.32**	-.36	-.28	.41**	-.26*	.27*	.29**
6. Work Satisfaction	.13	-.23	-.24	.07	-.10	.31**	.15
7. Training Effectiveness	.37**	-.41*	-.18	-.04	.00	.19	.10
8. Performance Feedback	.22*	-.38	-.46*	.19	-.20	.38**	.13
9. EEO Women	.36**	-.25	.13	-.02	.06	.25*	.06
10. EEO Minority Groups	.12	-.22	-.11	-.02	-.11	.04	-.10
11. Opportunity for Promotions	.15	-.31	-.18	.06	-.01	.32**	.24*
12. Downward Communication	.14	-.32	-.18	.12	-.18	.33**	.19
13. Upward Communication	.28*	-.27	-.04	.15	-.30**	.33**	.17
14. Satisfaction with Pay	.20	.11	.31	-.17	.23*	.15	.30**
15. Morale	.34**	-.32	-.02	.03	-.19	.29**	.23*
16. Physical Working Cond. & Equip.	.24*	.03	.02	.03	.12	.02	-.07
17. Co-Worker Cooperation	.33**	-.23	.04	.32**	-.33**	.17	.32**
18. Operational Efficiency	.47**	-.47*	-.39*	.24*	-.33**	.28*	.36**
19. Workload Balance	.28*	.13	.24	.05	-.25*	.30**	.24*

[1]Unemployment Insurance Offices, Eastern State, N = 73.
[2]Employment Service Offices, Midwestern State, N = 22.
[3]Employment Service Offices, Eastern State, N = 78.
*$p < .05$
**$p < .01$

should be negative, that is, high MAS scores should be associated with low cost per unit of output. The results indicated that the expected pattern was obtained. For the intake cost per applicant, the key scores, which had significant validity coefficients, were Operational Efficiency and Training Effectiveness. The intake process is, again, a clerical, procedural process, and the same two measures had significant validities against a somewhat similar criterion in a different geographical location in a different kind of organization. Essentially all of the MAS scores had negative relationships with this criterion measure, as was expected.

On Employment Cost per Applicant, two scores had significant relationships. These were Operational Efficiency ($r = -.39$) and the Performance Feedback score ($r = -.46$). Again, the majority of the MAS scores had negative validities as expected against this criterion that involved the number of placements and the total costs for that placement.

The next criterion listed in Table 6, Job Development Placements per Applicant Available, was a kind of innovation measure, involving the number of job openings created as a percentage of the total applicants served. This criterion was predicted at the .05 level of significance or beyond by three MAS scores: Climate for Innovation ($r = .41$), Co-Worker Cooperation ($r = .32$), and Operational Efficiency ($r = .24$). The innovation score in the MAS was the most highly related to this innovation measure, another indication of the construct validity of the MAS.

The next criterion measure, Referrals per Placement, was a process measure dealing with efficiency, involving the number of referrals made per placement. This criterion was predicted significantly by 10 MAS scores. Since this measure is an indication of the relative inefficiency necessary to obtain a placement, MAS scores should have a negative relationship to this score, i.e., when a high number of referrals had to be made to obtain a placement, one would expect that management procedures were relatively inefficient in the use of human resources. The scores with significant relationships with this criterion were Planning and Administrative Efficiency ($r = -.37$), Co-Worker Cooperation ($r = -.33$), Operational Efficiency ($r = -.33$), etc.

The next criterion, Placements per Applicant, was a percent of potential measure, involving the number of individuals placed as a percentage of applicants available. It was predicted at the .05 level or beyond by 13 of the 19 MAS scores, including Performance Feedback ($r = .38$), Downward Communication ($r = .33$), Upward Communication ($r = .33$), Work Satisfaction ($r = .31$), Planning and Administrative Efficiency ($r = .29$), etc. Since this criterion measure is a key one for Employment Service operations, that is, the percentage of clients served, the number of MAS scores that correlate significantly with it is a further indication of the importance of the results. The most valid score for this criterion, Performance Feedback, was also the most valid score in predicting the similar Missouri criterion--Employment Cost per Applicant. These results suggest that the key factor in obtaining a high number of placements is frequent attention to this aspect of Employment Service operations.

The final criterion listed in Table 6 is Service per Applicant, which involved the number of applicants placed, tested, counseled, and trained

expressed as a percentage of the number of applicants available. This measure was predicted by eight of the MAS scores. The most valid MAS score was Operational Efficiency (r = .36), followed by the Co-Worker Cooperation score (r = .32).

These data can be summarized briefly by saying that the MAS was significantly related to a number of different performance criteria in different geographical locations and that a meaningfully consistent pattern of relationships existed between the MAS scores and the different performance measures.

Data Processing Screens

An important part of the MAS system, which has contributed to the results described above, was the application of certain scoring procedures designed to select those MAS data which were reported in an accurate and sincere manner. Prior to application of the SPECTR screens described below, the code numbers reported on the answer sheets were checked for accuracy if only 1 or 2 individuals used the same organizational code. Respondents with code numbers which did not appear in the code book were deleted from the data bank.

With any survey endeavor of the MAS-type, a certain amount of erroneous data is returned by the participants. This may come from several sources, such as participants responding in a random fashion, responding to most or all questions with a particular set, answering only some of the questions, marking the same response alternative to the items, losing the place on the answer sheet, etc. With most surveys, many errors of this type are included in the analysis. However, within certain statistical probabilities, much of the more blatant forms of erroneous data may be eliminated.

SPECTR is a computer program developed by IBRIC to overcome the error that results from response sets, random responding, etc. This program screens out all respondents who answer the MAS in obviously biased ways, and does not allow their deviations to influence the results. The percentage of answer sheets typically rejected by the various screens has been about 10%. The amount of error represented in this percentage would obviously have made a tremendous difference in the interpretation of results and in the reliability of measurement.

The SPECTR screening procedures involved the following parameters:

1) Number of illegal responses--the answer sheet used for obtaining responses to the MAS was designed to accommodate questions with five alternatives. However, certain questions in the MAS had fewer than five alternatives. This allowed the respondent to mark a response on the sheet which did not appear in the questionnaire. Such a response was called an illegal response. A large number of illegal responses could indicate that the respondent was not attending to the questionnaire, was not marking responses in the appropriate area of the answer sheet, was deliberately making erroneous or random responses, etc.

2) Number of missing responses--this is simply the number of items not responded to, or left blank. Illegal responses were also counted as missing

responses. It was felt that a large number of missing responses indicated an unwillingness to cooperate, inadequate time to answer all questions, etc., and the resultant area scores would not adequately reflect the organization's level on the dimension measured.

3) Within-Score Consistency (WSC)--given a set of score areas, each containing relatively homogeneous items, a score can be computed for each participant based on the average variance among the items in each score area. This average within-score variance for the set of 19 MAS score areas is called the Within-Score Consistency. A large WSC score indicated that the respondent did not tend to respond similarly to items which had similar content and may have been marking responses on the answer sheet in a random fashion. An extremely small score would also indicate that the respondent was not responding meaningfully to the items that made up a score area and was deliberately answering to the same degree to each item (e.g., all positive or all negative); in short, there was very limited variability in the employee's responses. Cutting scores for each end of this distribution were set so that approximately 5% of the subjects were rejected for random response patterns, and less than 1% of the subjects were rejected for rigid response patterns. As a check of the effectiveness of these computer screens, 50 answer sheets were filled with random responses and processed. All 50 of the answer sheets were rejected by SPECTR. Twenty-two were rejected by the illegal response screen, which was the first applied; the remaining 28 cases were rejected by the random response screen. Thus, the reliability of these procedures was very good.

4) Across Score Consistency (ASC)--extremely favorable or unfavorable response patterns resulted when subjects attempted to portray the working environment either in an excessively positive or excessively negative manner. These screens were based on the rationale that, if a number of scores were not correlated, it was extremely unlikely that a person would obtain a consistent pattern of very positive or very negative responses when a more random pattern would be expected. The situation is somewhat analogous to obtaining all heads in tossing ten unbiased coins, where the probability is the product of the individual probabilities. A sample of approximately 5,000 cases was used to determine the relationships among scores. Nine pairs of variables were then selected which had near-zero correlations. For each near-zero r, an individual's score for one variable was multiplied by the score on the other variable; these were then summed so that an average cross-product score could be obtained for the variable pairs selected. Those who had excessively high (unfavorable response set) or excessively low (favorable response set) average cross-product scores could thus be screened out. While exact probabilities were not computed because the correlations were, in fact, not zero, it is not very likely that many satisfactory or legitimate cases were rejected. In the Department of Labor data, less than 3% of the cases were rejected for a favorable response pattern, and less than 1% for an unfavorable response pattern.

All of these screens helped to ensure that the resulting data concerning the characteristics and operating procedures of the individual units were more accurate. These screens represent an unusually sophisticated analysis, which is not yet available on any other similar management system.

The unique properties of the MAS allow it to be used as a separate system or to be combined with other organizational audit and development functions to give a more thorough and in-depth analysis of the situation in any particular agency or organization. The MAS offers an excellent system for analyzing the human resource management practices of an organization, or, on a larger scale, it can assess the current organizational climate and offer recommendations for correcting problem areas.

The features of the MAS that can be stressed would include:

1) Each supervisor of five or more employees receives a computer feedback report describing the state of human resource management for that work group across 19 score areas. Higher levels of management receive individual feedback reports, copies of reports received by subordinate supervisors, and a combined report for all employees subordinate to him.

2) The MAS was designed with an underlying behavioral emphasis. This emphasis facilitates the development of programs for constructive change as the questionnaire itself contains descriptions of those activities which can lead to improvement of a particular management procedure. This behavioral emphasis also contributes to high agreement among employees within a work group.

3) The system offers two kinds of scoring information--a percentile rank score, and a criterion-referenced score--so that both comparative and absolute information are available to facilitate effective interpretation of the results.

4) The MAS Handbook for Supervisors provides direct, behaviorally-based suggestions for organizational development for each of the 19 score areas and information which will aid in the interpretation of the scores.

5) The system uses a sophisticated computer program to screen out various response patterns and thus increase the reliability of the scores fed back to each work unit. The response patterns excluded by the program include random response patterns, excessively positive or negative patterns, repeated response patterns, and excessive missing and/or illegal responses.

6) The system has unusual reliability for its length, as all scores except one have internal consistency coefficients of .70 or better. Furthermore, the MAS uses intraclass correlations to assess agreement between observers where highly significant results have been obtained on all 19 scores.

7) Although relevant performance criteria for this kind of instrument are difficult to obtain, significant validity coefficients have been obtained to indicate that the MAS can predict organizational performance measures relevant to human resource management. To illustrate, a variety of organizational performance criteria concerning the operation of Employment Service offices in two states, and a productivity measure from Unemployment Insurance offices have been predicted significantly with a variety of MAS scores.

8) The MAS has also shown a pattern of significant relationships with various control scores such as office size and workload. These results provide guidelines for certain aspects of human resource management that can be followed to overcome the situational variables which impact on the organizational performance measures.

9) Extensive norm data have been accumulated on over 20,000 employees. The return rate for the instrument has been surprisingly high, generally greater than 90%.

10) Specific training deficiencies can be identified and treatment provided only to those areas of the organization in need, thus making for more effective and economical organizational development. The use of the MAS in training programs should be highly relevant since problems of transferring course content to the work situation should be essentially eliminated as training data can be based on the trainee's own work group.

In view of the significant results obtained, further research and application of the system were warranted. The current research effort was concerned with the generalization of previous results and with the development of the system in a study of management procedures, ES performance, and a number of control scores in six states.

CHAPTER IV

PROCEDURE

This chapter will present the procedures followed during the research, beginning with a description of the sample. The sample section will include descriptions of the data collection procedures, the number of individuals completing the Management Audit Survey, and the number of work groups included in the analysis of the criteria, control scores, and MAS data. This section will be followed by a discussion of the criterion problem, which, as in any research of this kind, is of paramount importance. A description of the control scores considered in the study and how they were analyzed to examine their impact on ES performance criteria will be discussed next. Finally, the chapter will conclude with a description of the data analysis procedures used to examine the interrelationships of the MAS, criteria, and control scores.

Description of the Sample

The MAS data were collected through the efforts of the Audit and Investigation regional representatives. They and the monitors from Washington visited the participating states, and arranged for the administration of the MAS. The states included in the study were selected on the basis of their general representativeness, willingness to cooperate, and the judged quality of their criterion data. The participating states of Missouri, North Carolina, and Tennessee had been studied with the MAS in June of 1974. New data collection was carried out in the states of Ohio and Texas in October of 1975 and Mississippi was added in December of 1975. This array of different time periods of data collection provided an additional benefit to the study, as different economic conditions were in effect at the time of the data collection, providing an opportunity to assess the impact of the control scores under varying economic and geographic conditions.

A description of the number of subjects included in the study from each of the participating states is presented in Table 7. The table shows estimates of the total number of employees from each of the states, the number of answer sheets scanned for each state, and the resulting participation rate for the MAS. The overall average return rate for the six states studied was 91%, a remarkable participation rate for studies of this kind. The table also presents the number of subjects that were dropped from the study by the specially-developed computer program SPECTR before average scores for each work group were computed. Inspection of this table indicates that the random response screen was responsible for deleting the largest number of answer sheets. At the bottom of the table, the total number of subjects deleted from each state is presented, together with the number of subjects that were used for the computation of the MAS results. Finally, the table presents the total percentage of subjects rejected. This percentage ranged from a low of 5% in North Carolina to a

Table 7

Number of Subjects Rejected from the Sample for Each State and the Total Sample

	MS	MO	NC	OH	TN	TX	TOTAL
Population Estimate	920	2000	1588	3200	1301	3900	12909
Identifiable Answer Sheets Scanned	909	1795	1387	2899	1129	3748	11867
% Return	99	90	87	91	87	96	92
SPECTR Screens:							
Unfavorable Responses	1	7	7	38	5	25	83
Favorable Responses	6	34	12	32	29	119	232
Random Responses	26	76	36	145	48	193	524
Rigid Responses (WSC)	9	11	4	11	8	21	64
Missing and Illegal	13	4	4	50	6	39	116
Bad Code Number	5	24	12	14	5	88	148
Total Dropped	60	156	75	290	101	485	1167
% Rejected	7	9	5	10	9	13	10
Feedback N	849	1639	1312	2609	1028	3263	10700

high of 13% in Texas, with an overall average of 10% for the total sample. The availability of a sophisticated computer program such as SPECTR to eliminate bad data is obviously an important benefit to the study.

Since the primary purpose of the study was to examine the relationships between various performance measures and management procedures as assessed by the MAS, the local offices included in the study had to be comparable in their opportunities for criterion performance. Thus, from the total sample presented in the previous table, all personnel not in ES offices were screened out, and the remaining sample of local offices was further screened on other characteristics. A list of these screens and the number of offices eliminated by each are presented in Table 8. Several of the screens listed on the table overlap, and many offices would have been screened out for more than one reason. Screens 1 or 2 were applied to those offices identified as missing either MAS or ESARS criterion data. Screens 3 and 4 were designed to eliminate the very small or very large offices. Since the MAS was designed to focus primarily on the management problems of each work group throughout an organization, extremely large work groups, which were not representative because of their size, or extremely small groups, where there were not sufficient observers to obtain stable estimates, were screened out. The 5th screen, on type of office, eliminated offices where criterion data were not directly comparable to the bulk of the total sample. Screens 6 and 7 were very similar to screen 3 which eliminated very small offices where the criterion data were less likely to be reliable. The 8th screen applied only to Mississippi, where there were a number of local offices with MAS data available, but ESARS data for these offices had been combined and were not available separately. When the ESARS measures for more than three local offices had been combined, those offices were eliminated from the Mississippi sample. While the remaining offices in the combined sample represent the vast majority of ES offices in these states, and should provide some general applicability for criterion findings and MAS relationships, the removal of different kinds of offices does limit the generality of the findings of the study to similar kinds of offices.

The Criterion Problem

The definition and quantification of performance goals, objectives, and standards for individuals and organizations has traditionally been labeled the criterion problem. This is a subject which has generated much discussion, but limited research, and even less consensus about how implicit and explicit issues should be resolved.

Despite the lack of consensus among investigators concerning the criterion problem, one facet of agreement can be found--its paramount importance. Performance criteria serve as the crucial guides for the development of any social program or organization in defining the goals of the organization, monitoring their development, evaluating achievements, diagnosing deficiencies or opportunities for improvement, providing feedback about process and outcome measures, and integrating these concerns for decision-making at all levels of the organization. One of the more interesting and recent treatments of the criterion problem, which reviews a number of issues inherent in the area, is an article by James (1973). He reviewed

Table 8

Number of Local Offices Eliminated from the Sample for Each State and the Total Sample

	MS	MO	NC	OH	TN	TX	TOTAL
Total Number of Offices	36	70	72	118	31	124	451
Screens:							
1. No MAS Data	0	11	6	31	0	10	58
2. No ESARS Data	0	3	4	4	3	9	23
3. MAS N Less Than 3	6	12	2	11	2	15	48
4. MAS N More Than 50	0	2	0	2	4	2	10
5. WIN, CEP, CETA, Job Bank, Casual Labor, Itinerant, Rural Manpower	0	29	14	34	1	35	113
6. Applicants Available Less Than 100	0	0	5	2	0	1	8
7. Placed Less Than 50	0	14	5	4	0	13	36
8. More Than Three Offices Combined on ESARS Data	8	0	0	0	0	0	8
Total Offices Screened Out	14	38	17	53	11	53	186
Remaining Offices	22	32	55	65	20	71	265

various criterion models, including: 1) the ultimate criterion model, which argues for general measures or an overall composite; 2) the multiple criterion model, which argues for separate treatments for separate criteria; and 3) the general criterion model, which adopts a systems perspective in its development--including individual differences, task demands, organizational reward structures, and training and development experiences--which leads to organizational outcomes that are interrelated to the inputs and process measures through feedback loops. These approaches are not necessarily mutually exclusive and James argued that a necessary consideration for criterion development is construct validation procedures where measures or indicators are combined through theory and empirical data.

The ES performance measures examined in the study can be found in Table 9. These measures were selected on the basis of a review of the results obtained in the Pennsylvania study and from measures developed, or suggested, by other contractors. There are a number of comments that are appropriate concerning this table. To begin with, the list itself is quite comprehensive, covering a wide variety of different kinds of performances which ES offices carry out. The table considers functions pertaining to applicants, employers, to special target groups, special services given to applicants, as well as a number of internal effectiveness ratios and two measures of quality of placements.

The measures were also classified by type of criterion measure. These are indicated by the parenthetical letters which follow the individual criterion measures. The three types were as follows: (A) measures of output in relation to cost; (B) level of performance measures, such as the percent of applicants placed; and (C) penetration measures with which the performance of the local office was compared to the total market activity, such as the number of applicants available expressed as a proportion of the total unemployed within the county served by the local office.

The fact that all of these measures involve some kind of ratio with shared terms makes their analysis according to methodological and psychometric standards more difficult. These standards of sensitivity, redundancy, reliability, construct validity, contamination, etc., will be discussed when the criterion relationships are presented. The sharing of common terms in numerator and/or denominator also made difficult the use of certain statistical techniques which have been widely used to examine criterion relationships (e.g., factor analysis). The data, however, could be analyzed for reliability for four of the six states, where quarterly data were obtained. These states were Mississippi, North Carolina, Tennessee, and Texas. Yearly data only were obtained for Missouri and Ohio and, thus, an analysis of their reliability through correlations of data from adjacent quarters could not be carried out.

An important consideration in the analysis of criterion data is the extent to which they were contaminated by situational variables, or, as they are more typically called in the psychometric literature, control variables--variables which have an impact on either the criteria or the predictors and make unequivocal interpretations of the results difficult. In the analysis of ES functions, these control variables were

Table 9

Examples of Criterion Categories
and Individual ES Performance Measures*

I. Labor Exchange Function

Applicant Service Function

1. Individuals Placed / Applicants Available (B)
2. Individuals Placed without Training / Applicants Available (B)
3. Applicants Available / Total Unemployed (C)
4. Individuals Placed / Total Employed (C)

Employer Service Function

5. Openings Filled / Openings Listed (B)
6. Openings Listed / Number of Employer Contacts (B)
7. Openings Listed / Total Employed (C)

II. Extended Services

Special Target Groups

8. Composite Measure(s) of the following ratios: (B)

   Veterans Placed/Veterans Listed
   Minorities Placed/Minorities Listed
   Poor Placed / Poor Listed
   UI Claimants Placed / UI Claimants Listed
   Migrants Placed / Migrants Listed
   Women Placed / Women Listed
   Handicapped Placed / Handicapped Listed
   Youth Placed / Youth Listed
   Older Workers Placed / Older Workers Listed

Special Services

9. $\frac{\text{Individuals Placed}}{\text{Applicants Tested + Counseled + Enrolled in Training}}$ (B)

10. $\frac{\text{Applicants Tested + Counseled + Enrolled in Training}}{\text{Applicants Available}}$ (B)

III. Internal Effectiveness Ratios

11. New Applicants / Total Intake Cost (A)
12. Referrals / Individuals Placed (B)
13. Job Development Placements / Applicants Available (B)
14. Inactivations / ES Positions (B)
15. Individuals Placed / Total Cost for Employment (A)
16. Individuals Placed / Direct Employment Costs (A)
17. Openings Listed / Direct Employment Costs (A)
18. Individuals Placed / ES Position (B)

IV. Quality

19. Long-Term Placements / Applicants Available (B)
20. High-Wage Placements / Applicants Available (B)

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*Letters in parentheses indicate classification of measures in the following criterion models: (A) Measures of output in relation to costs; (B) Level of performance measures; and (C) Penetration measures--extent of service.

very important. As previous research has demonstrated, they have substantial and highly significant relationships with the kinds of performance measures listed in the table.

Description of the Control Variables

In the analysis of the control variables, previous research studies were reviewed to develop measures which potentially could have some impact on ES performance at the local office level. These measures included internal variables describing the nature of each local office, such as:

- Workload (Applicants Available/ES Positions)
- UI Claimants as a Percentage of Applicants Available
- Special Applicants (including Veterans, Minorities, Poor, UI Claimants, Migrants, etc., as listed in Table 9) as a Proportion of Total Applicants

Since previous research had indicated that size of office was itself an important variable influencing performance, different size measures were also included in the study, such as:

- Applicants Available
- ES Positions

Also important in assessing ES performance has been the type of labor market situation in which the office is located. A number of variables were identified and assessed to evaluate labor market factors. These included:

- Total number of unemployed workers
- Percent of workers employed in large firms
- Percent of workers employed in manufacturing industries
- Percent of workers employed in construction industries
- Unemployment rate

These control variables were analyzed in a number of ways to increase the understanding of their impact. The procedures used included the computation of zero-order correlations between the individual control variables and the criterion measures; a factor analysis of the control scores to determine their underlying structure; and, finally, a multiple regression analysis of the control variables against two key performance measures.

Data Analysis of MAS Scores, Control Scores, and Criterion Measures

The MAS results for the participating states were obtained by determining

the percentage of favorable responses in each of the states on each of the 19 score areas, so that some insight could be obtained about the range of management procedures in the states studied. The relationships between the MAS scores and the control variables, and the validity of the MAS scores in predicting selected criterion measures were examined through correlations on the total sample. In addition, an analysis of selected validation results in selected states was carried out to clarify the implications of the research.

The methodological procedures followed in this study do not in any way convey the difficulty involved in working with these kinds of performance data. Initially, the investigators had been concerned that the criterion data should be tightly sequenced around the administration of the Management Audit Survey so that the management procedures in effect at the time could be related to the performance measures. This also obviously applied to the control variables. Thus, the early data analyses carefully maintained the order of the criterion data in relation to the administration of the MAS. However, as the data analysis proceeded, it became clear that the error in the criterion data outweighed the time sequence of the criteria in relation to the MAS in importance. To illustrate, criterion data were obtained in Missouri and Ohio for the year preceding the administration of the MAS. If it were necessary for criterion data to closely surround the administration of the MAS, the criteria from these states should have been less predictable than from states where the criterion data surrounded the MAS administration. However, it was found in the states where longer time periods were considered, e.g., the preceding year, that higher validities were generally obtained. Thus, the concern in the literature about organizational climate data being more valid for time periods considerably in the future or immediate in the past was not verified in this study. As a result of this experience, all of the quarterly ESARS data were collapsed. The data were averaged across time periods when separate quarters were available. However, the quarterly data did allow analysis of the reliability of the criteria which was an important outcome of the study.

Furthermore, examination of the data by quarters and by type of office indicated extensive variation in the performance measures for local offices and for states. The normalization procedure described below was very helpful in removing some of the idiosyncracies in the data. In addition, removing offices which had a specialized function, such as WIN, CEP, CETA, and other such classifications of offices, helped to make the remaining offices more comparable on the performance criteria. Still, there were some extensive differences in offices by state. Either states used different kinds of data collection and reporting procedures, or there were extensive problems in how the data were reported within the states. To resolve these problems, the data were inspected by hand to remove highly improbable scores. This hand inspection only removed four offices from the total sample studied, but helped to make the resulting findings more representative.

Another procedure followed was the elimination of offices which had one or more impossible measures, i.e., placing more than 100% of their applicants, etc. The results of these screening procedures will be presented along with the discussion of the reliability of the criterion data.

For a number of reasons, normalized scores were used in the analysis of

all data, unless otherwise indicated. The shape of raw score distributions, many of which were highly skewed in this study, may have an undue influence on how variables are interrelated. The normalization procedure rank ordered all of the scores, and then forced these rank orders into a normal distribution with a predetermined mean and standard deviation. This procedure controlled the effect of skewed distributions, the extremely deviant work group, and made the resulting distributions appropriate for a variety of statistical techniques.

The correlations between the raw score and the normalized score for the criterion measures generally ranged above .90, so the procedure did not alter the position of any one work group in a rank ordering of all the work groups. These high interrelationships would normally indicate that either raw or normalized scores could be used, without any difference in the result, but the normalized scores were used for the reasons summarized below.

1) The normalized scores had a more varied pattern of interrelationships, suggesting higher levels of convergent and discriminant validity and thus greater construct validity than did the raw score interrelationships. That is, conceptually similar normalized scores correlated more highly with each other than did the corresponding raw scores.

2) The normalizing procedure reduced the effects of any work groups that were extremely different from the other work groups in a state, without losing those work groups. Intercorrelation results on normalized measures reflect the entire sample, and are not an artifact of one or two extremely different work groups.

3) The normalized scores more nearly meet the requirements of statistical procedures (e.g., homoscedasticity).

4) Normalizing the scores within states allowed the data to be combined across states even though the criterion measures were for different time periods, etc.

CHAPTER V

RESULTS

This presentation of the results will begin with the analysis of the criterion data. Initially, this will involve presentation of the reliabilities of the criterion measures and other problems encountered with the data. The intercorrelations of the criterion measures will then be discussed and certain other advantages and limitations of the various criterion measures will be pointed out. A discussion of control scores will follow and will involve zero-order correlations, a multiple regression analysis of the control scores against selected criteria, and factor analysis of the control scores. Finally, the chapter will conclude with a presentation of the results obtained with the Management Audit Survey. These data will be related to the control measures and to the criterion measures for the total sample and for selected measures by states.

ES Performance: Criterion and Control Scores

Analysis of Criterion Reliabilities

In four of the six states used in this study--Mississippi, North Carolina, Tennessee, and Texas--criterion scores for different quarters were available. That is, for the quarter preceding the administration of the MAS and the quarter succeeding the administration, separate sets of criterion data were available. On North Carolina and Tennessee, the second quarter preceding the administration of the MAS was also available. For Missouri and Ohio, only yearly data were available.

With repeated measures available over time, the reliability of the criterion measures could be determined. If the criterion measures were reliable indicators of the performance of ES local offices, then there should be a similarity between the score reported for one quarter and the score reported for another quarter. Any differences found between the two quarters for a given work group might be accounted for by error, seasonal differences, or by unusual circumstances, either in the local office or in the market environment served by the local office. With less reliable criterion measures, predictions by any set of predictors are increasingly more difficult because the scores are composed of error variance, not common or specific variance which would be stable across occasions. With unreliable data, the situation is similar to having a moving target, where the performances of the local offices within a state vary across time.

The reliabilities of selected criterion scores for the four states are presented in Table 10. These criteria were selected to represent different ES functions and to simplify the presentation of the results. These selected criteria generally represented the more relevant criteria based on all the evidence available to the investigators which is presented throughout this

Table 10

Reliabilities of Averaged Adjacent Quarterly Data
on Selected Criteria

Criteria	MS	MO*	NC	OH*	TN	TX
1. Direct Employment Costs per Placement	.50		.80		.32	.72
2. Placements per Applicant Available	.59		.66		.50	.80
3. Openings Filled per Openings Listed	.58		.77		.69	.79
4. Placements per Job Referral	.59		.75		.50	.88
5. Placements per ES Position	.55		.71		-.13	.74
6. Proportion of Special Applicants Placed	.67		.64		.56	.86
Number of Offices with Some Quarterly Data Dropped	0	3	34	2	12	9

*Yearly data only available.

chapter. The selected criteria represented generally different kinds of measures for focusing on Cost per Placement, Percentage of Applicants Placed, Openings Filled as a Percent of Openings Listed, two effectiveness measures of Placements per Job Referral and Placements per ES Position, and, finally, a special services measure, the Proportion of Special Applicants Placed.

The reliabilities, where such measures were obtainable, varied by state. In Mississippi, all of the reliabilities for the selected measures were below .60, except for criterion 6--the Proportion of Special Applicants Placed--which was .67. While the reliabilities tend to be consistent, conventional standards for reliability are at least .60, if not higher. Thus, the reliabilities from Mississippi were low from a psychometric point of view. In North Carolina, quite a different picture emerged as all of the criterion measures had reliabilities greater than .60 and, in some cases, were as high as .80 (for the criterion measure of Direct Employment Cost per Placement). Tennessee was another state where reliabilities of criterion measures tended to be unusually low, ranging as low as -.13 for Placements per ES Position. The Direct Employment Cost per Placement also varied rather markedly, with a reliability coefficient of only .32. With low reliabilities, of course, the performances of the local offices approach that of random numbers and represent serious difficulties in the criterion measures. For Texas, generally satisfactory reliabilities were obtained as all of the reliability coefficients were above .70. This is a much more desirable state of affairs where effective criterion measures have been available.

Since quarterly data could not be obtained from Missouri and Ohio, reliability information was not available for these states. However, the yearly data would tend to be more reliable than quarterly data, averaging out any unusual circumstances that might have occurred during that time.

Also shown in the table are the number of local offices with some quarterly data dropped. These were local offices with performance measures which exceeded possible limits, indicating obvious errors in the reporting system. For example, such inaccuracies of measurement included more placements than applicants available, more openings filled than listed, more placements than referrals, etc. Although North Carolina tended to have generally reliable criterion data, this was only after a number of offices had data deleted. When final average data were computed for North Carolina, 34 offices had at least one quarter of criterion data dropped because of apparent reporting errors. Tennessee also had a fairly high number of errors in the data, as 12 offices had at least one quarter dropped. Altogether, 60 local offices had some quarterly data dropped because the reported scores were not possible.

In view of the relatively modest reliabilities and the number of errors encountered in the data, studies of Employment Service performance are difficult, due to the limited stability of the performance measures. Also difficult are policy decisions and higher level management procedures when accurate performance data are not available. These results suggest that:

- Quality control procedures should be carefully reviewed so that more effective and accurate performance measures can be obtained.

- Alternate and simplified reporting procedures should be considered to obtain accurate performance measures of ES offices, both for use at the local and at the national level.

- Important policy decisions should be supplemented with additional information whenever possible to reduce the impact of any error inherent in the data.

- A measure of the accuracy of the reported data should be included as one of the measures of ES local office performance.

In view of the limited reliabilities, the total sample of offices was further screened so as to exclude criterion measures in selected states where the reliabilities were below .60. This procedure, in effect, removed the majority of the measures from Mississippi and Tennessee but included essentially all of the measures on Missouri, North Carolina, Ohio, and Texas. The resulting sample size for the analysis of the criterion intercorrelations and for the validity results presented later in this chapter was approximately 265, but some data were missing for some of the criteria.

Analysis of Criterion Interrelationships

The intercorrelations among the most relevant criteria (Variables 1 through 6) together with correlations of other criteria which had policy implications for ES (Variables 7 through 15) are presented in Table 11. Variable 1 (Direct Employment Cost per Placement) had a pattern of at least moderate negative intercorrelations with the other criterion measures included in the study. This measure of cost would be expected to have negative intercorrelations as higher costs are a measure of less effectiveness. The correlations with Individuals Placed per Applicant Available, Percent of Openings Filled, and Individuals Placed per Referral were all modest. The correlation with Individuals Placed per ES Position, which is the major component of the cost figure, was considerably higher (-.66). Direct Employment Cost per Placement had a pattern of noticeably lower correlations with all of the rest of the criteria included in the study, indicating a lack of convergence with these criteria.

Variable 2, Individuals Placed per Applicant Available and one of the key criterion measures in the study, correlated with Percent of Openings Filled at a modest level (.30) and higher with Individuals Placed per Referral and Individuals Placed per ES Position (.56 and .51, respectively). These correlations indicated that there was some tendency among local offices that scored high on one performance criterion to score high on other quite different kinds of performance measures. However, the results also showed the complexity of ES operations, as a number of measures were necessary to adequately represent and assess ES performance. Certainly these criteria represent an important spectrum of ES activities. Individuals Placed per Applicant Available correlated very markedly with the Percent of Special Applicants Placed, as might be expected, since they had similar components. The Percent of Applicants Placed also correlated highly with Variables 9 and 10, which also shared components with Individuals Placed per Applicant Available.

Table 11

Selected Criterion Score Intercorrelations

Selected Criteria:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Dir. Emp. Cost/Placements	--														
2. Indiv. Placed/Apps. Avail.	-25	--													
3. % of Openings Filled	-30	30	--												
4. Indiv. Placed/Referrals	-39	56	64	--											
5. Indiv. Placed/ES Positions	-66	51	34	45	--										
6. % of Spec. Apps. Placed	-19	94	30	50	44	--									
Less Relevant Criteria:															
7. Job Dev. Placements/Apps. Avail.	-09	34	10	22	15	37	--								
8. Inact. with No Serv./ES Positions	-12	-60	13	-12	26	-63	-42	--							
9. Long-Term Placements/Apps. Avail.	-12	82	00	28	38	80	47	-65	--						
10. High-Wage Placements/Apps. Avail.	-20	63	-05	16	30	61	21	-43	59	--					
11. Apps. Avail./Total Unemployed	-12	42	34	38	50	32	-01	02	14	18	--				
12. Indiv. Placed/Total Employed	-23	67	50	58	65	61	-02	-23	40	40	71	--			
13. Openings Listed/Total Employed	-20	60	34	44	43	53	-09	-37	30	36	64	86	--		
14. Ind. Placed/Apps Tested+Couns+EnrTrng	-09	39	22	23	40	36	22	-09	34	15	10	21	11	--	
15. Apps Tested+Couns+EnrTrng/Apps Avail.	03	04	-12	04	-16	11	02	-31	12	10	00	10	14	-80	--

Variable 3, the Percent of Openings Filled, had modest correlations with the selected criteria except for Individuals Placed per Referral, where the correlation was .64. This latter correlation is suggestive of effectiveness in handling the characteristics of the employee and employer as the two measures of Percent of Openings Filled and efficiency in the placement process were substantially related.

The Individuals Placed per Referral measure (Variable 4) also tended to have generally modest correlations with the balance of the criteria studied. This process measure had some convergence, but certainly no duplication or substantial overlap with other criteria.

Variable 5--Individuals Placed per ES Position--was one of the most important criteria in the study, particularly because of its significance in the Balanced Placement Formula. This measure correlated highly with costs and percent of applicants placed, and also correlated .65 with Variable 12 (Individuals Placed/Total Employment). However, the latter correlation is partially due to shared terms, the numerator, which are very important in interpreting these data.

The composite Percent of Special Applicants Placed (based on the number of Minorities, Youth, etc. placed, divided by the corresponding number listed) was so highly related to Individuals Placed per Applicant Available (Variable 2) that it could have been eliminated from the study. However, it does represent an important function of ES services and thus was retained. The measure was most related to other measures which contained similar terms, having placements in the numerator and the denominator consisting of applicants available.

Criteria 7 through 15 were measures which were examined throughout the course of the study, but which seemed to have somewhat less relevance for ES operations as standards of effective performance. Some of these measures do, however, have important implications for ES operations. For example, Variable 8, the number of individuals Inactivated with no Service per ES Position, had a pattern of somewhat marked correlations with other criteria, thus suggesting its possible use as a measure of ineffectiveness. However, close inspection of the relationships indicated that a number of the correlations were relatively low (e.g., with Percent of Openings Filled, the correlation was only .13). In addition, this measure was substantially related to a control variable, Workload ($r = .91$). Because this criterion was so highly contaminated by Workload, the measure was not further considered as an important criterion measure.

The two quality measures (Variables 9 and 10), dealing with the number of long-term and high-wage placements per applicant available, tended to have generally modest relationships with other variables, except for the marked correlations with the other percentage of applicants placed measures. In addition, these quality measures had relatively low means. Other analyses, not presented here, examined high-wage and long-term placements as a percent of total placements. The results showed marked variations between local offices, and these measures had zero or negative relations to performance on the other selected criteria. These results suggest that high-wage and long-term placements are not an important, integrated part of ES operations,

and warrant more attention both in future research and in the practices of management to bring about higher levels of performance on these quality of performance measures.

Variables 11, 12, and 13 were all penetration measures dealing with the amount of service rendered by the local office in relation to the amount of economic activity in the county served by the local office. These measures had some problems associated with them, even though the correlations with the selected criteria were generally satisfactory. When the local office is the unit of analysis, matching the local office in an appropriate manner with the county served is difficult. Thus, at the local office level, there were only a limited number of offices (67) which could be accurately linked to a specific county where economic data were available. In all other cases, there were two or more offices in one county or one office serving a number of counties and the lines of service could not be clearly identified. In handling these data, only offices serving one county were considered. Thus, the sample for these measures was small. These measures were relatively strongly influenced by office size, correlating generally in the -.50's with the denominator, indicating that the offices in the larger cities were less efficient on these criteria.

The last two variables in the matrix, 14 and 15, were concerned with special services given to applicants. Variable 14 dealt with the number of placements expressed as a percentage of the number of applicants tested, counseled, or enrolled in training. Variable 15, the number of applicants given these special services expressed as a percent of applicants available, was a similar measure. The latter measure, dealing with the extent of service to applicants, had zero or very low correlations with all the other criteria except Variable 14 with which it shared common terms. Although Variable 14 looked somewhat more relevant, with somewhat higher intercorrelations, the placement term in the numerator was a contributing factor in the results obtained. In view of the essentially zero relationships of Variable 15 with all other criteria, the results indicated that the expenditure of effort on testing, counseling, and training of applicants did not tend to result in higher levels of ES performances. These services might be justified on other grounds (e.g., better service to applicants), but there was no immediate observable payoff in ES performances.

These results suggest that:

- ES performance consists of a number of complexly interrelated components. The underlying management practices which can have an effect on one aspect of performance must be considered for their potential effect on other important performance areas.

- Measures of cost of ES performance are related to delivery of service, suggesting that those management practices which underly cost effectiveness are either related to other practices affecting non-cost measures of performance, or have a general effect across areas of performance.

- The quality of placement measures (high-wage and long-term placements) had limited relationships to the other ES performance criteria, i.e., high levels of performance on these

measures did not go hand in hand with high levels of other performance indicators. Management practices which emphasize and increase this area of performance should be considered if high quality of placements is to remain a goal of ES offices.

- The modest but consistent relationships of the efficiency measure of Individuals Placed per Referral with the other criteria indicated that general efficiency of operations was an important contributor to the performance of ES offices across measures.

Criterion-Control Score Relationships

The intercorrelations of selected control scores and their relationships with selected criteria are presented in Table 12. During the course of the study, a large number of control scores were examined for their influence on performance measures of ES offices. Typically, these measures had an interesting pattern of relationships with selected criteria.

Workload, which was assessed by the ratio of applicants available to ES positions, had a very meaningful pattern of relationships with the selected criteria. To illustrate, high Workload, where there were a great number of applicants to serve in relation to the staff available, resulted in lower cost per placement, i.e., there was a positive benefit in having high Workload. But this benefit was associated with a lower percent of applicants placed ($r = -.46$). The correlations of Workload with variables 3 and 4, Percent of Openings Filled and Individuals Placed per Referral, were essentially zero, making no difference. But on variable 5, Individuals Placed per ES Position, a positive relationship was again obtained ($r = .44$). This result indicated that high Workload was associated with another form of effectiveness, a productivity measure of Individuals Placed per ES Position. Workload was also correlated -.50 with the Percent of Special Applicants Placed. Because Workload had a differential impact on two important goals of ES operations, this phenomenon will be discussed in greater detail later.

Variable 8--UI Claimants per Applicant Available--also had significant correlations with some of the selected criteria, correlating most highly with Variables 2 and 6, which dealt with the percentage of applicants placed. Other correlations tended to be very low, indicating an inconsequential impact. The results obtained with percent of UI claimants and percent of applicants placed indicated that local offices with a large proportion of UI claimants in the total applicant pool placed a lower percentage of their applicants. For reasons which cannot be determined from the data, these individuals were apparently more difficult to place.

Variable 9--Proportion Special Applicants--had a pattern of relationships with the selected criteria similar to, but somewhat lower than, that of UI Claimants per Applicant Available. The exception to the pattern was with Individuals Placed per ES Position; special applicants were apparently somewhat more demanding of ES staff time resulting in lower productivity ($r = -.33$). Variables 10 and 11--the two size measures of Applicants Available and ES Positions--had very similar patterns of correlations with the selected criteria as would be expected since the correlation between these

Table 12

Intercorrelations of Control Scores
with Selected Criteria

Variables	7	8	9	10	11	12	13	14	15	16
Criteria:										
1. Direct Employ. Cost/Placements	-37	16	19	32	47	35	17	01	-02	-03
2. Indiv. Placed/Apps. Avail.	-46	-52	-40	-35	-10	-48	-16	03	00	-34
3. % of Openings Filled	07	-08	04	-26	-22	-50	-21	05	-10	03
4. Indiv. Placed/Referrals	-12	-21	-08	-38	-28	-56	-29	02	05	-03
5. Indiv. Placed/ES Positions	44	-18	-33	-18	-39	-34	-22	03	03	-07
6. % of Special Applicants Placed	-50	-45	-38	-24	02	-35	-06	09	07	-31
Control Scores:										
7. Workload (AA/ES Positions)	--									
8. UI Claimant/Applicants Avail.	37	--								
9. Special Apps/Applicants Avail.	10	22	--							
10. Total Applicants Available	12	08	20	--						
11. Total ES Positions	-36	-07	14	82	--					
12. Total Unemployed	06	22	13	66	53	--				
13. % Employed in Large Firms	-08	00	-08	26	27	46	--			
14. % Employed in Manufacturing	-01	13	-08	-04	05	03	31	--		
15. % Employed in Construction	-06	-07	02	28	31	25	12	-08	--	
16. Unemployment Rate	35	31	30	09	-02	23	-08	18	03	--

two size measures was .82. Certainly, the general indication of the results for these two variables was that large offices were less efficient on the criteria studied. In general, both of these size measures had negative relationships with each of the selected criteria.

Variables 12 through 16 all dealt with characteristics of the community in which the local office was located. Variable 12 assessed the total number of unemployed workers within the community and tended to have a consistent and fairly strong negative impact on ES performance. All correlations were above .30 in magnitude, indicating that, in counties where there were a large number of unemployed workers, the local offices tended to perform less well on the performance criteria. This result, to some extent, paralleled those from the other size measures. Variable 13, the percent employed in large firms within the county served by the local office, might have been expected to have positive relationships with ES performance, since it would indicate a limited number of firms to be contacted and to serve. Yet, contrary results were obtained, evidently because the large firms tend to be located in areas where there is also a large number of unemployed workers, i.e., the correlation between the Percent Employed in Large Firms and the total number of unemployed workers within the county was .46. Although the percentage of workers employed in large firms had a negative impact, the correlations did tend to be modest. Variables 14, 15, and 16 all generally had rather slight impact on ES performance, although unemployment rate did correlate negatively with the percentage of applicants placed and the percentage of special applicants placed.

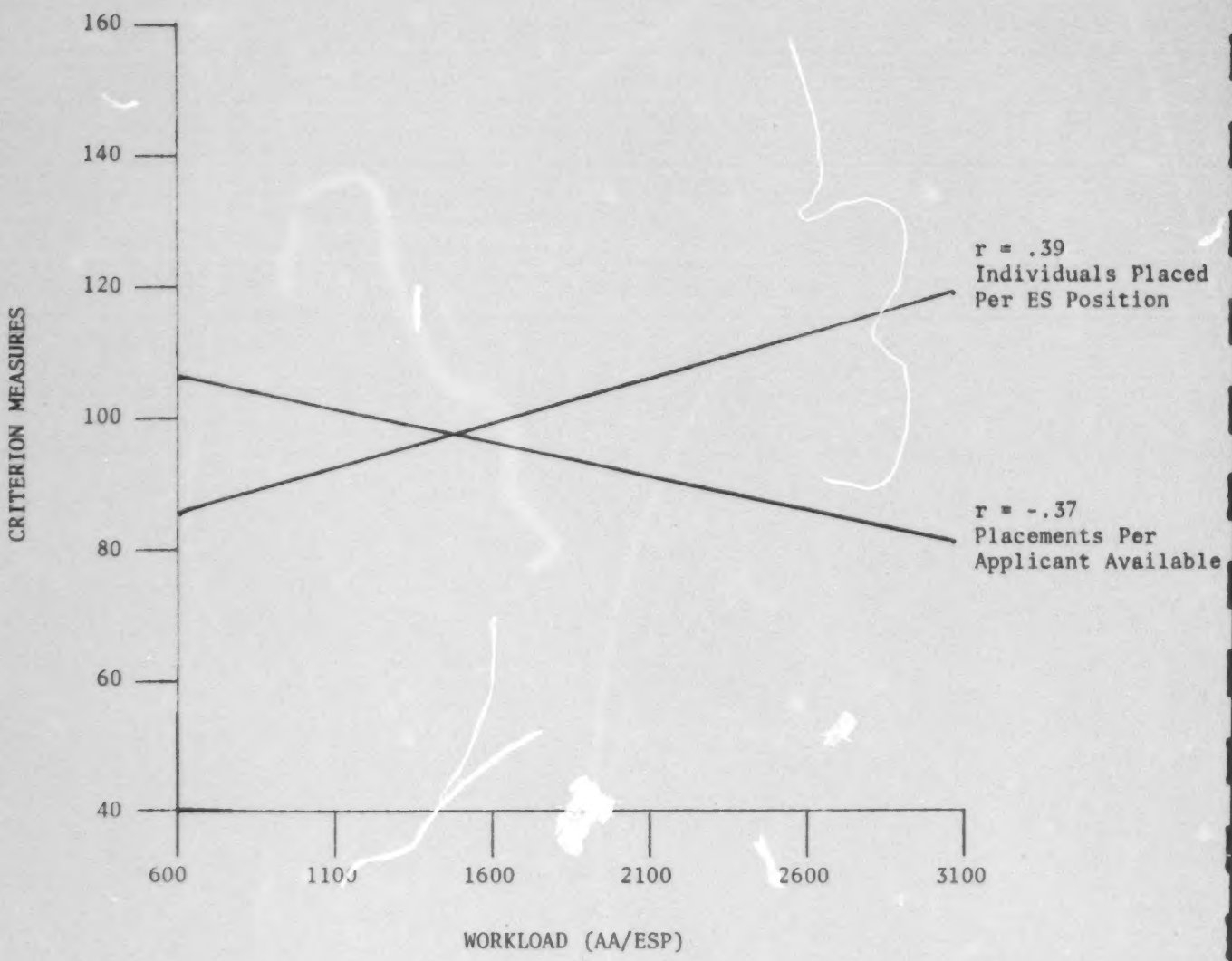
These zero-order relationships provide the clearest interpretation of the impact of the control variables considered singly. However, they do not provide information about how these variables interact to produce a cumulative effect on ES performance. This topic will be treated later in the report.

As mentioned previously, Workload correlated -.46 with Percent of Applicants Placed and .44 with Individuals Placed per ES Position on the combined states sample. These results replicated almost exactly those found in the previous study on Pennsylvania, where the corresponding correlations were -.44 and .42. In view of this differential impact of Workload on two important performance measures of ES operations, the topic will be treated more extensively.

In Table 13, the regression lines for two criterion measures using the normalized scores have been plotted on Workload using raw scores. The data displayed in this table were taken from Ohio and represent the general findings which occurred for the total sample of offices studied. The table shows what level of performance on each of the two criterion measures could be expected from various levels of Workload. At low levels of Workload (approximately 600 applicants per ES position on yearly data), an above average percent of applicants were placed, but a below average rate of productivity was obtained. At the other extreme, where there was an extremely high Workload, the opposite phenomenon occurred. Offices appear very efficient on the productivity measure of Individuals Placed per ES Position but are markedly below average in placing applicants. Thus, the level of Workload should be adapted, depending on national priorities, goals, and the relative importance of these two different kinds of criteria of ES performance. If

Table 13

Ohio Regression Results and Correlations of
Workload with Two Key Criteria (Yearly Data)



Percent of Units	16%	33%	32%	11%	08%

these goals were judged to be equally important, the approximate staffing pattern of Workload should be near the mean of the Workload variable, where the two regression lines would be expected to intersect. Since common data by state were not obtained on the number of ES positions, the current study cannot be used to set or even approximate the optimum level of Workload, given a definition of the goal importance. However, an important topic for future research would be a national study of Workload to examine the impact on these two criteria. In this manner, guidelines might be established for states and local offices to develop more nearly optimum levels of Workload which are congruent with national policy. In addition, since Workload could be expected to vary markedly across seasons, depending on the local office, these results would also strongly encourage the use of flexible staffing procedures to minimize costs while still maintaining effective performance. If flexibility of staffing can be obtained, it should represent a significant benefit to ES performance.

The analyses of the criterion-control score relationships led to the following conclusions:

- Workload is a very important variable in determining the effectiveness of ES offices. High Workload has a negative impact on Individuals Placed per Applicant Available and a positive impact on Individuals Placed per ES Position. Thus, the level of Workload should reflect national priorities. A consequence of this result is that states, to maintain a high level of funding, could withhold or add staff expenditures according to the importance of the two goals in the allocation of funds. Currently, Individuals Placed per ES Position has a high weight; thus, a high Workload would tend to result in higher funds and a lower percent of individuals placed.

- A higher proportion of special applicants--women, handicapped, youth, older workers, minorities, veterans, poor, and UI claimants--in the applicant population places greater demands on the ES staff resulting in lessened productivity. Larger ES offices generally tend to have more special applicants and may thus be penalized for their lessened efficiency with decreased funds.

- The proportion of UI claimants in the applicant population served also leads to lessened productivity on the basis of percentage of applicants placed. Further research in this area is warranted.

- The characteristics of the types of employment in an ES office's area had only a slight influence on productivity. Size of the office was more important, with a moderate negative influence on ES performance measures.

- The control scores investigated in this study provided an explanation for a large part (approximately 50%) of the differences in the performance of ES offices on two important criteria. Control scores should be included in any investigation of the effectiveness of the ES . How

these control score effects can be overcome by ES administrators to improve performance should be a topic for further research.

Multiple Regression of Control Scores

Ten control scores were placed in a stepwise multiple regression analysis to predict each of two selected performance criteria: 1) Individuals Placed per Applicant Available; and 2) Individuals Placed per ES Position. The results of these analyses are presented in Tables 14 and 15. These tables show the zero-order validity coefficients, the beta weights, the beta r products, and the raw score weights, when all variables had been normalized with a mean of 100 and a standard deviation of 20.

For the Individuals Placed per Applicant Available criterion, the multiple correlation was .72, accounting for 52% of the variance. UI Claimants per Applicant Available and Workload had considerably higher beta r products than the other control scores, together accounting for approximately 30% of the criterion variance. The variables entering into the equation had negative weights, with the exception of Percent Employed in Manufacturing and Percent Employed in Construction, which were positively correlated with the criterion. The absolute contribution of these latter two variables to the prediction of the criterion was small. Having eight variables entered into a multiple regression equation with significant weights is relatively rare. These results indicate the complexity of the criterion measure, with a large number of variables having significant effects.

For the other selected criterion of Individuals Placed per ES Position, the multiple correlation was .68, accounting for 46% of the variance. Again, the first two variables entered into the prediction equation were Workload and UI Claimants per Applicant Available. Here, however, their order was reversed, and Workload had a positive, rather than negative, impact. The relative contribution of Workload to the total prediction was substantial when compared to the other predictors. The beta r product for Workload was .26, while the next highest contribution for the other variables was .06. These data confirmed the findings presented above concerning Workload and its impact as an important control score on performance indicators, overshadowing all the other control scores.

While the relationship of the best weighted combination of control scores to the criterion measures is substantial, this area of investigation should be studied more closely and these results interpreted cautiously. For example, Workload correlated -.92 with Direct Employment Cost per Placement in North Carolina, but only -.04 in Ohio. If the criterion measures were relatively stable across time and across geographical locations, the magnitudes of the criterion-control score correlations should be much more comparable. The relationship between Individuals Placed per Job Referral, another criterion measure, and the control score of UI Claimants per Applicant Available provides additional evidence of lack of stability in the criterion-control relationships; the correlation was -.49 in Missouri, but only -.07 in Ohio.

So, while control scores are important and must be taken into consideration in any investigation of the effectiveness of ES performance, the impact of

Table 14

Multiple Regression Results: The Prediction of Individuals Placed per Applicant Available by the Control Variables

	Predictors	Validity	Beta	Beta r Product	Raw Score Weight
4.	UI Claimant per Applicant Avail.	-.52	-.3490	.1814	-.328
3.	Workload (AA/ESP)	-.45	-.2571	.1157	-.204
5.	Proportion Special Applicants	-.38	-.1968	.0748	-.163
6.	Total Applicants Available	-.32	-.2177	.0697	-.173
10.	% Employed in Manufacturing	.11	.1958	.0215	.157
7.	Unemployment Rate	-.36	-.1322	.0475	-.109
8.	% Large Firms of Total Firms	-.03	-.1308	.0039	-.095
11.	% Employed in Construction	.04	.1014	.0040	.093
	R^2			.52	
	R			.72	

Note: Both the criterion and the predictors were normalized and given a mean of 100 and a standard deviation of 20. The contribution of each variable to the regression was significant at the .05 level.

Table 15

Multiple Regression Results: The Prediction of Individuals Placed per ES Position by the Control Variables

Predictors	Validity	Beta	Beta r Product	Raw Score Weight
3. Workload (AA/ESP)	.42	.6135	.2577	.616
4. UI Claimant Per App. Avail.	-.20	-.3263	.0653	-.388
5. Proportion Special Applicants	-.29	-.2042	.0592	-.214
10. % Employed in Manufacturing	.11	.2286	.0251	.232
9. % Employed in Large Firms	-.12	-.1533	.0184	-.120
7. Unemployment Rate	-.08	-.1591	.0127	-.166
11. % Employed in Construction	.07	.1689	.0118	.196
6. Total Applicants Available	-.14	-.1283	.0180	-.129
R^2			.46	
R			.68	

Note: Both the criterion and the predictors were normalized and given a mean of 100 and a standard deviation of 20. The contribution of each variable to the regression was significant at the .05 level.

these variables in a particular situation could be expected to vary.

These findings should be interpreted in conjunction with findings on reliability of the criteria, i.e., approximately 30 to 40% of variance was unstable, so that the remaining variance not subject to error or control score effects is small. Stated alternately, that portion of the total variance subject to management control and prediction by the MAS is small.

These findings indicate that:

- Control scores had an important impact on ES performance but the criterion-control system is relatively unstable, subject to a substantial amount of error or variability in a particular state or in a given time period.

- Predictions of these relatively unstable criterion measures with the MAS scores when control scores had such a varied effect were relatively difficult.

- These results, based on local offices as the unit of analysis, may be more or less stable when the data are aggregated to higher levels of analysis such as SMSA's or to states. Certainly this is a promising area for future research.

- The importance of developing a simplified and accurate criterion reporting system that is responsive to the needs of all levels of management is reinforced. Such a system could be used to integrate organizational goals, management procedures, and ES performance.

Factor Analysis of Control Scores

Selected control scores in the validation study were factor analyzed to examine the underlying dimensions and common characteristics among the various measures. Table 16 presents the rotated factor matrix for these control scores and the communality for each variable. The communality is an estimate of the reliability of that variable based on shared common variance and is typically an underestimate of other forms of reliability. Only those loadings above .40 were included in the matrix to simplify presentation.

Factor A was a size dimension, determined by the potential number of employable people who could use the services of a local Job Service office, as well as the size of the local office.

Factor B was somewhat complex and dealt with the nature of employment in urban-rural locations. High percentages of the labor force being employed in governmental work and in manufacturing had opposite signs, indicating that an area with a large number of workers in government tended to have a small number of workers in manufacturing.

Factor C was a workload dimension and none of the other control scores had loadings greater than .40 on it. These results indicated that office

Table 16

Factor Analysis of Control Scores--
Rotated Factor Matrix and Communalities*

	A	B	C	D	h^2
7. Total Employed	.94				.91
15. Civilian Work Force	.94				.91
6. Total Unemployed	.91				.90
5. Applicants Available	.81				.69
11. Percent Employed-Large Firms	.48	.67			.72
13. Percent Employed-Construction	.43				.26
9. Change in Employment	.42			.44	.42
10. Percent Large Firms of Total Firms	.40	.69			.68
12. Percent Employed-Manufacturing		.77			.62
14. Percent Employed in Government		-.77			.62
1. Workload (AA/MAS N)			.91		.85
2. Workload (AA/ES Position)			.89		.84
3. AA-UI Claimants per AA Total				.70	.57
8. Unemployment Rate				.67	.56
4. Proportion Special Applicants				.65	.49

*Factor loadings below .40 omitted.

procedures with regard to Workload were not strongly associated with the location or size of office.

Factor D was a special applicants dimension. Special applicants include those who were female, economically disadvantaged, minority group members, handicapped, veterans, under 22, over 45, and/or UI claimants. The factor was also defined by the unemployment rate and change in employment. The factor thus represented a dimension dealing with different applicant groups served.

Results of the MAS

This section will proceed by presenting the results of the percent favorable scores across the six states studied, where wide differences were obtained. This will be followed by a relatively brief section on the relationships of MAS to the control scores and conclude with a rather extended section on the validities of the MAS in predicting the criterion measures, both on the combined sample and in selected states for selected criterion measures.

Percent Favorable Responses

The six states in this sample had wide differences on the percent favorable scores as shown in Table 17. Mississippi had the highest score on 11 of the 19 MAS score areas, while Ohio had the lowest scores on 15 MAS measures. Even though Mississippi was the highest overall on percent favorable, that state was also the lowest on EEO for Women and EEO for Minorities, so there is still room for improvement. Ohio had the highest score on EEO for Minorities, and some other scores were above or near average.

There have been recent changes in the top administration in the state Employment Service in Ohio, so these low scores may have changed since the MAS administration. In a management and administrative review of the Bureau of Employment Services in the State of Ohio, conducted by the Region V Manpower Administration (1975), 32 separate recommendations were made in an effort to increase the effectiveness of that Bureau. Over 1/3 of those recommendations would have a direct and immediate impact on the management practices measured by the MAS.

For example, the first recommendation made in this report stated that the role and responsibility of the administrator's office should be clearly defined, because the review found that the administrator's office tended to manage day-to-day operations, even in local offices, undercutting Division Directors, District Directors, and local office managers. The implementation of this recommendation would have an obvious effect on the MAS score of Delegation of Authority, with some overlap on the scores of Planning and Administrative Efficiency, Supervisory Effectiveness, and Morale. Further research should determine if the recommendations were followed, and if this did have an effect on the management practices measured by the MAS.

On the individual MAS score areas, the highest percent favorable scores were found on Work Satisfaction, Operational Efficiency, and Co-Worker

Table 17

Percent of Favorable Responses for the 19 MAS Scores
Across Participating States

	MS	MO	NC	OH	TN	TX	AVERAGE
MAS Score Areas:							
1. Fairness of Management	66	65	69	58	65	65	65
2. Delegation of Authority	57	55	57	49	59	55	55
3. Supervisory Effectiveness	67	65	60	60	66	66	64
4. Planning & Admin. Efficiency	47	48	43	42	48	46	46
5. Climate for Innovation	49	44	45	36	47	43	44
6. Work Satisfaction	75	75	74	72	76	71	74
7. Training Effectiveness	58	50	52	45	52	51	51
8. Performance Feedback	48	42	43	37	48	44	44
9. EEO for Women	54	63	71	66	73	64	65
10. EEO for Minorities	61	71	69	72	71	70	69
11. Opportunity for Promotion	33	28	31	20	29	32	29
12. Downward Communication	67	61	62	59	66	61	63
13. Upward Communication	52	46	46	40	51	46	47
14. Satisfaction with Pay	32	26	26	26	38	44	32
15. Morale	62	57	50	43	58	56	54
16. Physical Work. Cond. & Equipment	52	59	46	45	45	55	50
17. Co-Worker Cooperation	74	70	70	64	70	72	70
18. Operational Efficiency	75	73	68	65	72	71	71
19. Workload Balance	55	52	40	41	45	43	46
% Understaffing Responses	37	40	55	51	50	50	
% Overstaffing Responses	8	9	5	8	5	7	

Cooperation. These scores would indicate that the ES employees in these six states find satisfaction in the work they are doing, feel that their units function very well, and cooperate with each other in their work.

Low scores were found on Opportunity for Promotion and Satisfaction with Pay. These two scores are generally not controllable by the unit supervisor, so action strategies that could be used to counteract these low scores are difficult. The state-level administrators should be aware of them, however, and either move to alleviate these problems, or provide more explanation for the employees so that they can understand why promotions and salaries are not as frequent nor as high as the employees would like.

Among other scores that are low are Performance Feedback, Climate for Innovation, Planning and Administrative Efficiency, and Upward Communication. These scores could be improved with different management practices, and the MAS can be used to suggest management action strategies that could be used to result in an improvement in these score areas.

The Relationships of MAS Scores to Control Scores

The relationships among the MAS scores and the control scores provide some explanation concerning the effect of environmental variables on management practices. Certain environmental variables affect MAS scores in different ways, and knowledge of these control scores would help a supervisor to evaluate his management practices, as measured by the MAS, and to determine what the supervisor can do to improve the performance of the unit.

For example, larger offices, as defined by Applicants Available and number of ES Positions, had low MAS scores on Fairness of Management, Delegation of Authority, Performance Feedback, Downward Communication, Upward Communication, and Morale. These results do not indicate that a supervisor of a large office can not develop action plans that will improve the scores for these management areas. On the contrary, problem areas can be identified and steps taken to improve performance in these areas.

In the earlier study in Pennsylvania, Total Civilian Work Force had a strong negative relationship to Satisfaction with Pay. This finding was not replicated in this study on the total sample, but the results in Ohio were similar to those obtained in Pennsylvania. Total Civilian Work Force did have significant negative relationships with eight MAS scores, including Performance Feedback, Opportunity for Promotion, Downward Communication, Upward Communication, and Morale. The larger offices located in large urban centers have more urgent problems than other kinds of offices, and more time should be devoted to these management areas.

High Workload (Applicants Available per ES Position) was related to low Workload Balance--an indication of the conceptual validity of the MAS, and of the reliance that can be placed on the perceptions of the ES employees. On the total sample, the Workload control score did not correlate significantly with any of the other MAS scores, a finding that did not replicate the earlier results in Pennsylvania.

Total Unemployed had negative correlations with 11 of the 19 MAS scores as

would be expected in view of the correlation between Total Unemployed and Applicants Available (r = .66).

Two control scores were found to account for more variance than other control scores in the multiple regression analyses to predict Individuals Placed per Applicant Available and Individuals Placed per ES Position. These were Workload and UI Claimants per Applicant Available. These measures had very low relationships to the MAS scores except for the Workload score in the MAS. This indicates that the MAS scores and the control variables were measuring different parts of the variance of the criterion measures--at least the two for which the multiple regression was run.

In general, the findings of this study partially corroborated the findings of the earlier Pennsylvania study, especially concerning the effect of office size. The accumulation of more reliable data in the future will be needed to find more answers concerning the effects of situational variables on management performance. Conceptually, the findings of this study make logical sense, and provide a more adequate explanation of the effect of the control variables on the measures of management practices.

Validity Results: MAS Versus Performance Criteria

The validity coefficients of the 19 MAS scores against the six selected performance criteria are presented in Table 18. In this table of 114 validity coefficients, approximately 5% of them could be expected to be significant by chance. The results indicate a generally high percentage of significant validity coefficients, but the correlations are of limited magnitude. With the exception of column 1, which represents a cost criterion with which the correlations were expected to be negative, all other correlations in the table reflecting positive attributes of ES performance should be positive and this is generally true of the results that were obtained.

The most valid score for the Direct Employment Cost per Placement criterion was Performance Feedback, which confirmed the general findings of the Pennsylvania study. Altogether, 32% of the MAS scores had significant correlations with this criterion. Other MAS scores which correlated significantly with this criterion measure included Fairness of Management, Delegation of Authority, Opportunity for Promotion, Upward Communication, and Operational Efficiency.

With the second criterion, the number of Individuals Placed per Applicant Available, 42% of the MAS scores had significant relationships, the two highest correlations were with Satisfaction with Pay and Operational Efficiency, both of which correlated at the .22 level.

For the third criterion, Percent of Openings Filled, 74% of the validity coefficients were significant, with Morale and Opportunity for Promotion being the most valid scores. Individuals Placed per Referral was the most predictable criterion in the study on the total sample, as 79% of the MAS scores had significant validity coefficients against this criterion. The most valid score was Morale followed closely by Operational Efficiency and a number of other MAS scores. Individuals Placed per ES Position, one of the more important criterion scores in the study, was predicted with significant validity coefficients by 58% of the MAS scores. The most valid

Table 18

Validity Coefficients of MAS Scores
in Predicting Selected Criteria

(Combined States Data; N between 170 and 245)

		1 Dir. Employ. Cost/Placements	2 Ind. Placed/Apps Avail.	3 Percent of Openings Filled	4 Ind. Placed/Referrals	5 Ind. Placed/ES Positions	6 & Special Apps. Placed
1.	Fairness of Management	-15*	09	25**	22**	16*	10
2.	Delegation of Authority	-16*	06	22**	24**	15*	01
3.	Supervisory Effectiveness	-11	16*	10	10	17*	14*
4.	Plan. & Admin. Efficiency	00	12	16*	16*	10	08
5.	Climate for Innovation	-14	07	11	13*	14*	08
6.	Work Satisfaction	-09	18**	20**	24**	13	15*
7.	Training Effectiveness	04	08	22**	16*	09	08
8.	Performance Feedback	-22**	13*	17**	21**	19**	11
9.	EEO for Women	-11	08	09	-03	13	12
10.	EEO for Minorities	-04	12	-05	-02	06	11
11.	Opportunity for Promotion	-20**	17**	26**	24**	21**	13
12.	Downward Communication	-11	12	21**	19**	19**	09
13.	Upward Communication	-17*	11	19**	23**	19**	05
14.	Satisfaction with Pay	02	22**	16*	16*	14*	17**
15.	Morale	-14	19**	26**	29**	22**	14*
16.	Physical Work. Cond. & Equip.	01	12	03	04	13	08
17.	Co-Worker Cooperation	-03	08	17**	15*	09	05
18.	Operational Efficiency	-16*	22**	21**	24**	22**	20**
19.	Workload Balance	11	20**	18**	24**	-04	14*

*p ≤ .05; **p ≤ .01.

scores were Operational Efficiency and Morale. Finally, Percent of Special Applicants Placed was predicted by 32% of the MAS scores, the most valid score being Operational Efficiency.

Operational Efficiency was the most valid MAS score, predicting all of the selected criterion measures significantly. This score was followed by a number of others, including Work Satisfaction, Performance Feedback, Opportunity for Promotion, Satisfaction with Pay, and Morale. These scores correlated significantly with five of the six criterion measures.

While these results are appropriate when considering the level of validities obtained on the total sample, they do not provide information about the range of validities obtained in the separate states nor do they reflect the validities against some other important criteria. The validity coefficients for the Operational Efficiency score in predicting the separate criterion measures for each state are presented in Table 19. In this table, the only correlations of consequence for Missouri are for Direct Employment Cost per Placement and Individuals Placed per ES Position; however, these are two of the highest validities in the table. In North Carolina, four of the validity coefficients were above .20; in Tennessee, three of the validity coefficients for Operational Efficiency were above .30, but the correlation was negative for predicting Individuals Placed per ES Position. In Ohio, the validity coefficients were generally in the .30's, and Individuals Placed per ES Position had a validity coefficient of .43, one of the higher validity coefficients obtained in the study. In Texas, the Operational Efficiency score correlated above .20 with only two of the criterion measures, while in Mississippi, Operational Efficiency had substantial validities against only one of the criterion measures, Individuals Placed per ES Position.

These results indicated that the Operational Efficiency measure had some applicability across states, but there were many exceptions and the results should be interpreted cautiously in conjunction with all other information available. This is the general recommendation repeated throughout the Supervisory Handbook for the Management Audit Survey which stated that all other information available should be considered in interpreting the MAS scores. In view of the results of the current study, this recommendation still holds.

On the other hand, the opportunity of analyzing management procedures in conjunction with other criterion and control score data offers a significant opportunity for achieving the goals of Employment Service activities in producing higher effectiveness for ES operations. This can be illustrated by considering one of the criteria which was not selected for intensive study during the course of the investigation because of the relatively small sample size, a measure of Total Cost per Placement. Data were obtained on this measure from three states, Missouri, North Carolina, and Tennessee, with a total sample size of 78 offices. The total sample validity coefficient for the Operational Efficiency score predicting this criterion was -.45. The results of applying this prediction to the total ES dollars per placement data from the State of Missouri are presented in Table 20. The units which scored in the top 25% on Operational Efficiency had an ES Dollars per Placement average of $57.76, while for those units scoring in the bottom 25th percentile, the average total cost per placement was $87.43. These results indicated more than a 50% difference in cost per placement between the upper and lower units on Operational Efficiency, and a substantial opportunity

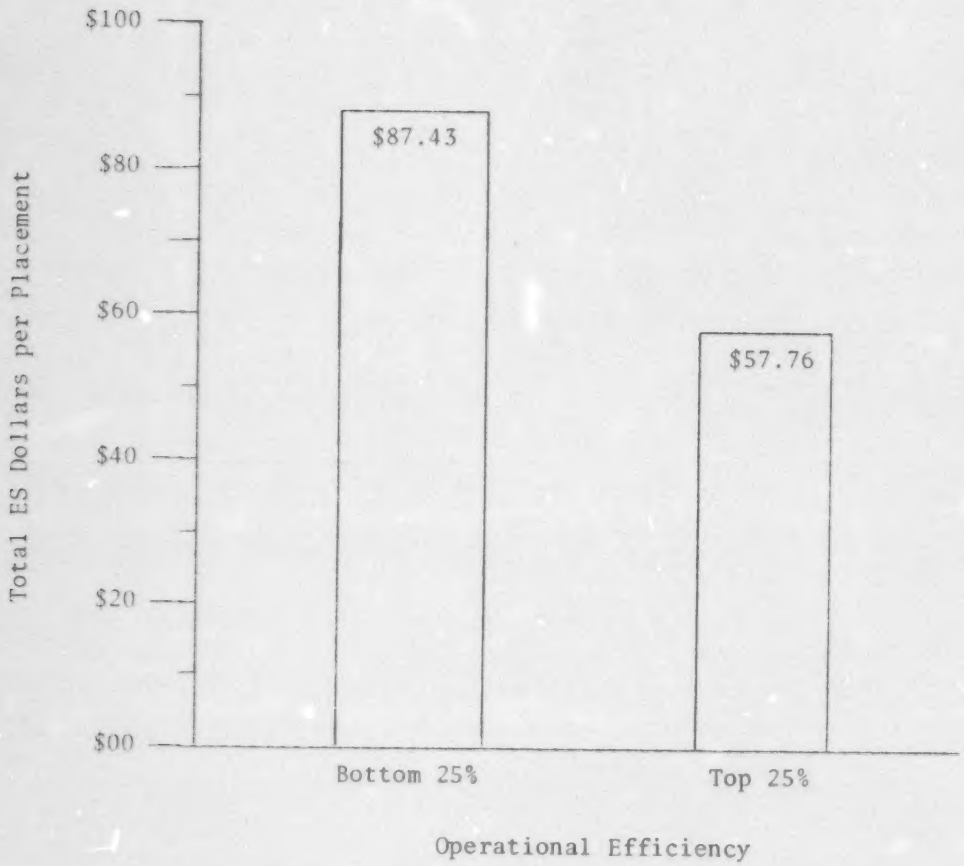
Table 19

Validity Coefficients of Operational Efficiency with Selected Criterion Measures Across Six States

	MS	MO	NC	OH	TN	TX
1. Direct Employment Cost per Placement	-04	-35	-04	-34	-09	-02
2. Individuals Placed per Applicant Available	07	09	25	30	39	18
3. Percent of Openings Filled	11	00	24	34	09	20
4. Individuals Placed per Referral	-08	04	26	31	11	26
5. Individuals Placed per ES Position	35	50	18	43	-31	03
6. Percent of Special Applicants Placed	08	08	23	29	35	19

Table 20

Average Total ES Dollars per Placement for Units in the Top 25% and Bottom 25% on the MAS Operational Efficiency Score*



*Missouri mean (72.60) and standard deviation (25.95); total sample validity = -.45, n = 78 offices.

for improving and integrating ES performance through attention to management procedures as assessed by the MAS.

The MAS Validities in Ohio

The highest MAS validities for predicting the six selected criteria were found in the State of Ohio. These validities can be found in Table 21. These validities offer some corroboration for the findings of the earlier study in Pennsylvania.

For example, on Individuals Placed per Referral, 11 of the 19 MAS scores had significant validities. In the Pennsylvania study, 10 of the MAS scores had significant validities. Seven MAS scores had significant validities in both states, including Fairness of Management, Planning and Administrative Efficiency, Upward Communication, Co-Worker Cooperation, and Operational Efficiency.

On the other hand, certain MAS scales did not prove to be quite as effective in Ohio. For example, Climate for Innovation and Downward Communication were among the best MAS scores for predicting the performance criteria in Pennsylvania, but these two scores were not effective predictors in Ohio. The scores that were identified as being ineffective in Pennsylvania were also ineffective in Ohio, with the exception of Fairness of Management, which had useful validities on two of the six criteria.

The predictability of the criteria generally followed the results obtained on the total sample, with Percent of Openings Filled and Individuals Placed per Referral being the most predictable. Also, as in the total sample, Operational Efficiency was the most consistently valid predictor, correlating significantly with all six of the selected criteria.

Because of the pattern of correlations among the MAS scores and the control scores, the magnitude of the validities would change slightly and differentially if the effects of the control scores were to be held constant. For example, the validity for Operational Efficiency predicting Individuals Placed per ES Position would drop from .43 to .39, if Workload were held constant across all work groups. The validity for Operational Efficiency predicting Percent of Openings Filled would increase from .34 to .36, if the effects of Total Unemployed were held constant. However, the validity for Satisfaction with Pay predicting Percent of Openings Filled would decrease from .46 to .23, if the effects of Total Unemployed were held constant. The first-order and second-order partial correlations would generally result in some loss, but the magnitude would typically be small.

The validity coefficients found in Ohio were obtained against criteria for a 12-month period which preceded the administration of the MAS by three months. Thus, the results from the MAS assessment of management procedures had many significant relationships to criteria of ES performance over an extended time period, an achievement which indicates in this example the importance of management procedures to ES performance.

The results obtained with the MAS indicated that:

- There is ample evidence of differences in management procedures within and between states.

Table 21

Validity Coefficients of MAS Scores in Predicting Selected Criteria in Ohio

(N between 38 and 65)

		1 Dir. Employ. Cost/Placements	2 Ind. Placed/Apps Avail.	3 Percent of Openings Filled	4 Ind. Placed/Referrals	5 Ind. Placed/ES Positions	6 % Special Apps. Placed
1.	Fairness of Management	-19	15	45**	34**	29	15
2.	Delegation of Authority	-15	11	33**	25*	22	09
3.	Supervisory Effectiveness	-24	12	29*	24	28	11
4.	Planning & Admin. Efficiency	-07	32**	45**	44**	25	31*
5.	Climate for Innovation	04	09	10	12	10	07
6.	Work Satisfaction	-25	27*	18	26*	19	25*
7.	Training Effectiveness	15	00	27*	23	20	02
8.	Performance Feedback	-25	22	36**	43**	22	19
9.	EEO for Women	-05	04	12	00	09	10
10.	EEO for Minorities	-10	04	-13	-02	00	03
11.	Opportunity for Promotion	-34*	22	54**	51**	39*	22
12.	Downward Communication	-08	09	31*	20	17	12
13.	Upward Communication	-22	17	37**	37**	29	12
14.	Satisfaction with Pay	-29	32**	46**	38**	48**	32**
15.	Morale	-16	25*	37**	31*	39*	25*
16.	Physical Work. Cond. & Equip.	09	-07	-09	-16	02	-07
17.	Co-Worker Cooperation	-24	22	36**	33**	43**	19
18.	Operational Efficiency	-34*	30*	34**	31*	43**	29*
19.	Workload Balance	10	00	26*	14	-06	-05

*p ≤ .05; **p ≤ .01.

- Although the validities were limited in magnitude, there was a general tendency for MAS scores to have a high percent of significant validities in predicting selected criteria of ES performance.

- Criterion unreliability and control score effects made prediction with the MAS difficult. In view of the generally consistent results, and the high validities obtained in selected states, such as Pennsylvania and Ohio, the most important issues deal with if and how MAS information can be used to bring about higher levels of ES performance.

- The MAS system, in conjunction with effective criterion measures and control scores, offers an opportunity to initiate sound management procedures throughout the ES system.

CHAPTER VI

REVIEW AND RECOMMENDATIONS FOR FUTURE RESEARCH

This research has involved an analysis of extensive amounts of data concerning Employment Service operations. Descriptions of management procedures were collected from 10,700 employees, and criterion and control score measures were collected on 451 local ES offices. These data were collected across six different states, during different time periods, so the project has cut across various economic and geographical situations. The results of the research are complex and difficult to summarize. Some of the more important findings are summarized below.

Review

Reliability coefficients were computed on four states--Mississippi, North Carolina, Tennessee, and Texas--on which quarterly data were available. There was some variation from state to state, but the reliabilities, generally speaking, were limited, i.e., many correlations were below .60. The more unreliable the data, the more difficult it is to show the impact of management procedures on ES performance. The unreliability of the performance data also makes policy decisions and higher level management procedures more difficult.

Considerable criterion complexity characterized the results obtained from measures to assess Employment Service performance. Six criteria were selected for more extensive study because of their importance to the Employment Service and their moderate interrelationships which indicated some convergence of management procedures in producing high levels of ES performance. An examination of the interrelationships revealed a great deal about the criteria; for example, the Service per Applicant (testing, counseling, enrolled in training) measure was not related to other ES performance measures, indicating that a continued review of these kinds of service is warranted. Also, quality of the placements (high-wage and long-term placements) did not receive as much emphasis in the ES as it should, since these criteria had only limted relationships to the other criteria.

Workload was the most important control score, having significant influence on several of the criteria. The differential effects of Workload on two criteria--a negative impact on Individuals Placed per Applicant Available, and a positive impact on Individuals Placed per ES Position--indicated that more research is needed to determine the policy implications of these results. The proportion of special applicants and the proportion UI claimants in the client population were found to have a negative influence on the productivity of ES work groups.

Control scores accounted for 52% of the variance for the Individuals Placed per Applicant Available criterion. UI Claimants per Applicant Available and

Workload were the most important control scores, together accounting for 30% of the variance. Control scores accounted for 46% of the variance of a second criterion--Placements per ES Position--with Workload being the most substantial predictor, accounting for 26% of the variance by itself. Because of the unreliability of the criterion measures and their dependence upon these control scores, little variance remained to show the impact of management procedures as assessed by the MAS.

Control scores were factor analyzed to determine the underlying dimensions and common characteristics of the measures. Four factors were found to be of importance--Size, Urban-Rural type of employment, Workload, and Special Applicants. This analysis helped to define the nature of the control variables that may influence ES operations at the local office level.

Mississippi had the highest percent favorable scores on 11 of the 19 MAS scores, and Ohio had the lowest scores on 15 MAS measures. Improvement on the Ohio scores could be expected with different management practices. Across the six states, the highest percent favorable scores were found on Work Satisfaction, Operational Efficiency, and Co-Worker Cooperation, indicating that the ES employees in these states found satisfaction in the work they were doing, felt that their units functioned well, and cooperated with each other in their work. Low scores were found on Opportunity for Promotion and Satisfaction with Pay.

The control scores dealing with office characteristics or situational factors describing the setting in which the local office operated were examined to determine their impact on the descriptions of management procedures as assessed by the MAS. Size was identified as an important control variable; larger offices had low scores on many of the MAS variables, confirming the results obtained with the criterion measures. The results of the MAS-control score relationship analysis partially supported the earlier findings in Pennsylvania.

The criteria were predicted with significant validities by a high percent of the MAS scores, between 32 and 79%, although the magnitude of the correlations was limited. The most predictable criterion was Individuals Placed per Referral. This was followed closely by Percent of Openings Filled, which was significantly predicted by 74% of the MAS scores. Operational Efficiency was the most valid MAS score area, having significant validities on all six of the selected criteria. Opportunity for Promotion, Morale, Performance Feedback, and Satisfaction with Pay were also generally good predictors, having significant validities on five of the six criteria. There were marked differences for the various MAS scores across states, with the performance criteria in the State of Ohio being the most predictable.

The validities in the State of Ohio were the highest overall, corroborating many of the earlier Pennsylvania findings. Seven MAS scores had significant validities on both states in predicting Individuals Placed per Referral. The predictability of the criteria generally followed the results obtained on the total sample, with Percent of Openings Filled and Placements per Referral being the most predictable. Operational Efficiency was the most consistently valid predictor, having significant validities on all six criteria. The validity coefficients found in Ohio were obtained against criteria for a 12-month period which preceded the administration of the MAS

by three months. The results from MAS assessments of management procedures in predicting different criteria of ES performance over such an extended time period indicated the importance of the research in measuring relevant management practices which could be used to foster more effective ES operations.

On the basis of this research, the important question of the validity of the MAS in predicting ES performance criteria has not been definitively answered. While a high percentage of significant validities were obtained, the generality of the results in each of the participating states was limited, partially because of the unreliability of the criteria and the influence of the control scores. A more inclusive question would make the following inquiry: Do the results indicate that the MAS can be used with other management information to strengthen management practices and improve ES performance? The answer to this question is partially dependent upon future research and upon interpretations of the current results. Since there were numerous indications of significant empirical relationships between MAS assessments of management practices and ES performance criteria, the answer to this question would be positive, if an effective system of recommended procedures for using MAS results with all other available information were available. This issue and the findings from the current study lead to the following recommendations for future research.

Recommendations for Future Research

1) There is not a set of recommended procedures for using MAS results in an integrated strategy of organizational development (OD) that makes full use of other available criterion and control score information. Since MAS scores are disseminated throughout an organization from upper levels down to lower level work groups, the combined system should have broad applicability. Thus, one of the possibilities for future research would be to design, implement, and evaluate OD strategies, including use of criterion and control score information, MAS results, and other OD techniques so that evaluation evidence as well as a set of recommended procedures would be available to guide future implementation and dissemination efforts. Such a study would involve the collection of criterion-control score information and MAS results at the beginning of the study, followed by various kinds of intervention efforts and repeated measures obtained on criterion-control score information and MAS scores. The intervention procedures would include information dissemination techniques, employee participation, development of action plans, continuous feedback loops, etc. This phase would then be followed by another phase where other organizational components, not studied initially except as a control group, would implement the resulting recommended procedures on their own without the support and intervention of the investigators. At the conclusion of this second phase, additional criterion and control score data would be collected to evaluate all procedures further.

2) As mentioned in the first recommendation for future reserach, a manual of recommended procedures is needed which would describe how MAS results can be used effectively in conjunction with other information. Since the MAS has been administered to such large samples of ES personnel (over 20,000 employees), designing such a manual of recommended procedures on the basis

of current experiences of states where the MAS has been administered, and upon all the available research findings without doing a long-term organizational development study would be a reasonable task. The manual could then be modified as a result of future experience, using these procedures. Obviously, this strategy would be much more economical, but less thorough, than an extensive OD study.

3) As described in the early chapters of this report, the MAS had its origin as a supplement to conventional auditing techniques, so that a wide variety of management procedures could be economically examined and feedback provided at all levels of the organization. In light of the current research findings, the MAS could be combined in an integrated fashion with an automated audit report analysis system which would consider a limited number of criterion and control scores such as Individuals Placed per Applicant Available, Individuals Placed per ES Position, Workload, and UI Claimants per Applicant Available, and the data analyzed via a computer-generated report for auditing and management personnel. The system could be highly efficient; that is, the report written within two weeks after completion of the survey. The output would include an analysis of management procedures and the criterion measures and their interrelationships to identify problem areas and opportunities for improvement in local offices. Such a system would go some distance toward integrating criterion performance, control scores, and management procedures into a sophisticated system to foster achievement of ES goals.

4) The Management Audit Survey was constructed to be a general-purpose instrument which would be appropriate for a wide range of organizations and functions within large organizations. The results of the current study supported many of the findings in the earlier study on Pennsylvania that certain key scores are more important than others for ES operations, e.g., Operational Efficiency, Performance Feedback, Morale, Downward Communication, etc. For these important score areas and others, redesigning questions and score areas within the MAS to be specifically applicable to management procedures of ES operations would be relatively efficient and economical. The rewriting of items would incorporate vocabulary and terms that would integrate management behaviors and procedures as part of the MAS system. The new form would thus be specifically designed for ES operations, would be economical, and could be used periodically to assess the relevant management behaviors.

5) As stated previously, one of the key issues is how to make best use of the results obtained in the current research to bring about higher levels of ES performance. The recommended research numbered 2), 3), and 4) above could be integrated to achieve such a goal. Such a combined system offers a number of advantages: A) definition and quantification of ES goals and performance indicators; B) assessment of management procedures which underly the achievement of such goals; and C) a means of integrating the different sets of measures of management assessments, criterion measures, and control scores into an integrated system.

6) The research indicated that control scores have an important effect on ES performance and yet there were strong indications of the instability of the criterion-control score relationships. Thus the results obtained in the present study as well as those obtained by other investigators

indicate that the important control score effects should be cross-validated over time, across geographical areas, and across units of analyses (i.e., local offices, SMSA's, and states). Without more definitive evidence about the magnitude of control score effects to determine the generality of the results and their implications, management cannot evaluate the actual nature or extent of control score effects.

7) The research revealed that there were not only reliability problems in the criterion data but also quality control limitations as a number of local offices had scores which were simply impossible on the measures involved. Thus, an opportunity for future research is the development of a simple, but effective, quality control system which would be entirely computer-generated for analyzing the accuracy of ESARS performance data. Such a computerized system would look at the absolute magnitude of the results obtained as well as check for meaningful relationships between numerator, denominator, relationships with other criteria, etc. Such a system would contribute to better quality of ESARS data and in itself could be a criterion measure of local office and state performance.

8) The results indicated that Workload was an important variable in influencing ES performance. Furthermore, the variable had differential impact on different kinds of criteria--Individuals Placed per Applicant Available and Individuals Placed per ES Position. The importance of these findings suggests that a nation-wide study should be conducted using available data to examine the standing of each state on the Workload variable. With this information, the significance of different levels of Workload could be evaluated in conjunction with national priorities and goals about the relative importance of these two criteria. Such information would be helpful in directing resource expenditures to accomplish national goals. Such a study should involve not only state-level data but data at local office level on a sampling basis. In this manner, an understanding could be obtained of the data aggregation process as different units of analysis are used. The study should consider regional and state office staff separately in looking at the outcome between the criteria and the Workload measure and the results integrated to make overall conclusions about staffing priorities.

Research on ES operations, performance, extent of service, client groups, etc., in different business environments, with varied political and social policy considerations will continue to be extremely complex. The results of the MAS system provide an opportunity for improvement in ES performance, as the characteristics of the MAS represent a level of considerable sophistication in the measurement of management procedures and organizational climate. Yet, as substantial information about the ES continues to accumulate, this leads to further problems of implementation and issues of policy and direction. The characteristics and further growth of such an open system remain as a continued challenge for future research and for ES management and employees.

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Appendix A

Intercorrelation Among MAS Scores
and Other Variables Across Individuals (N=12,131)

No.	Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1.	Fairness of Management	--				.					.					.					.					.
2.	Delegation of Authority	50	--			.					.					.					.					.
3.	Supervisory Effectiveness	58	50	--		.					.					.					.					.
4.	Planning & Admin. Effic.	43	38	50	--	.					.					.					.					.
5.	Climate for Innovation	50	57	53	32	--					.					.					.					.
6.	Work Satisfaction	34	38	37	33	38	--				.					.					.					.
7.	Training Effectiveness	48	46	57	51	47	37	--			.					.					.					.
8.	Performance Feedback	51	42	55	32	53	32	49	--		.					.					.					.
9.	EEO Women	32	20	22	13	23	14	22	22	--	.					.					.					.
10.	EEO Minority Program	23	19	22	06	21	18	17	15	50	--					.					.					.
11.	Opportunity for Promotions	50	38	39	33	45	38	44	46	29	16	--				.					.					.
12.	Downward Communication	59	53	58	52	52	40	61	53	27	20	47	--			.					.					.
13.	Upward Communication	62	50	51	41	60	39	52	53	30	21	54	66	--		.					.					.
14.	Satisfaction with Pay	24	14	14	17	14	19	21	15	11	08	36	23	24	--	.					.					.
15.	Morale	57	50	54	44	53	48	50	46	25	18	56	55	57	28	--					.					.
16.	Physical Working Conditions	24	24	21	21	24	23	27	19	13	07	29	26	27	19	35	--				.					.
17.	Co-Worker Cooperation	50	48	51	38	51	30	41	36	21	17	31	45	42	11	54	20	--			.					.
18.	Operational Efficiency	38	49	54	39	52	39	43	33	19	23	26	42	36	05	48	20	62	--		.					.
19.	Workload Balance	15	11	11	23	06	06	18	09	01	-03	14	15	14	20	20	13	10	03	--	.					.
20.	# Understaffing Responses	-08	-06	-05	-17	00	03	-11	-02	02	05	-08	-08	-07	-20	-12	-12	-05	02	-83	--					.
21.	# Overstaffing Responses	-11	-09	-13	-11	-11	-18	-13	-13	-06	-06	-08	-13	-12	06	-12	00	-12	-14	-09	-36	--				.
22.	Admin/Prof = 1 other = 2	-04	-12	05	21	-18	-08	05	-07	-11	-12	-09	02	-05	00	-08	-09	-07	-05	07	-07	00	--			.
23.	Minority = 1 other = 2	02	05	03	-06	05	05	02	-02	11	33	03	01	02	10	05	05	03	07	00	00	00	-09	--		.
24.	Supervisor = 1 other = 2	-10	-12	00	04	-21	-11	-03	-08	-11	-09	-15	-06	-13	-05	-13	-05	-08	-06	06	-09	05	27	-05	--	.
25.	Organization Level	-05	-15	-06	-14	-13	-08	-11	00	04	03	-12	-08	-09	-10	-15	-17	-08	-11	-07	08	-04	00	-12	18	--

Note: all decimals have been omitted.

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